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THE PRINCIPLES OF MONEY

THE
PRINCIPLES OF MONEY

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LONDON
JOHN MURRAY, ALBEMARLE STREET, W.
1919

Copyright, 1903,
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Published, March, 1903.

Printed at the University Press,
Cambridge, U.S.A.

To My Son

LAURENCE

TO THE READER

IN spite of the great literature of money, it has seemed to me possible, by a restatement of results already accepted and by a reorganization of the field, that we might be in a position to move forward to additional gains of a constructive character. Especially did this seem hopeful, if a separate and orderly exposition should be made of the principles of money quite independently of their countless historical applications. Although the earliest glimmerings of political economy came from the study of money, and although, as Mr. Jevons has well said, the literature of money is so extensive that no one man could ever have read it all, it is passing strange that there is to-day no treatise giving a scientific statement of all the principles of money. There is, it is true, mention here and there of nearly everything which one might wish to assemble in a treatise on monetary principles; but there has been little organic and constructive study. For instance, no such problem as bimetallism could be properly approached without first disposing of the laws regulating the value of money, that is, of the theory of prices; in fact, throughout much of recent writing the facts and the principles have been mixed in inextricable confusion. The central point in any study of monetary principles must be the theory of prices; and yet one of the best general treatises in English, Mr. Jevons's *Money and Mechanism of Exchange*, gives no attention to it. Even in the monumental work of Knies (*Geld und Credit*), the volume on Money (apart from Credit), while treating in detail the functions of money and the topics covered by chapters i, ii, iii, and iv within, does not set forth any

exposition of many other important principles of money; yet his work is of pre-eminent value for any serious student in this subject. Treatises there are, also, many and good ones, giving invaluable discussions upon special experiments or upon certain historical operations; but, in the main, they bear upon questions of the day, in some given period, such as the export of the precious metals in mercantilist days, the Bank of England Restriction, the recent possibilities of bimetallism, or the adoption of the gold standard. Yet, in this kind of literature, assumptions have been lightly made, as if bed-rock had been reached, when, in fact, the foundations have had scant examination, if any at all.

Indeed, the history of any form of money cannot be analytically treated without the use of a body of principles; without such a body, as every weary reader knows, histories of money are confusing recitals of unrelated details. As now massed, principles and applications, in most popular treatises, are so combined that a refutation of one point allows the routed opponent to find cover behind some other shelter which to the casual observer seems connected with the old position, when it has in truth no such relation; and warfare of this kind can go on forever without issuing in definite conclusions.

For these and kindred reasons — and at the risk of seeming presumptuous — an attempt has been made to reorganize the treatment of money. In furtherance of so large a task, it became necessary to establish for all money — whether metallic, or paper money, deposit currency, or what not — the general principles supposed to be operative in all countries at all times (friction apart). Whether there exists such a group of principles in the subject of money, or whether the exposition here given is the right one, must be determined by the criticism of students who follow me. I offer my contribution with a hearty respect for the inherent difficulties of the subject; and yet I must say that to me the principles have a simplicity and interdependence which suggest at least a strong presumption of truth, even if no claim is made to finality.

The present volume is the first in a series which aims — if the plan is ever finished — to cover the main field of money. After treating in Volume I the general principles of money, then one can take up later the problems connected with gold and silver (such as the logic of bimetallism, the compensatory theory, etc.), paper money, and the like, unincumbered with the discussion as to the theory of prices, and similar topics. By such an analysis of the various sections of the whole subject, it is believed that greater clearness and better and more truthful results may be obtained. The disclosure of distinct and separate problems and their place within the total province of money ought to bring greater acuteness to bear on each part, and to ensure greater progress in the future treatment of our subject. Without making absolute commitments, a provisional statement of the plans for succeeding volumes may be thus indicated:

I. The Principles of Money.
II. Metallic Money: Gold and Silver.
III. History of Metallic Money in the United States.
IV. Paper Money: The United States.
V. Paper Money: Foreign Countries.
VI. Banking.

Some of the main topics in this first volume, upon which an attempt has been made to offer new points of view, are the following:

An emphasis on the distinction between the standard and the medium of exchange, so that new light is thrown on the historical development of forms of money, and on the explanation of modern practice and prices; the rejection of the old assumption that credit was based on money, and a proposal of an entirely new analysis of credit and its effect on prices; a collection in brief form of all noteworthy tables of prices; the literature of the quantity theory given in extracts; a destructive and constructive study of the theory of prices; a restatement of the relations of prices to foreign

trade; a condensed history of the origin of legal tender in Great Britain, and a study of the economic effects of legal tender on the value of money; and a fuller examination of the laws regulating the value of token coinage and paper money, especially as regards redemption. On many of these points I find myself at variance with some current teaching, and especially with a body of doctrine associated with the authoritative name of Ricardo. It would be false to suppose that this attitude has been lightly taken; indeed, only after years of hesitation, and after a long inability to make the old doctrines explain our modern phenomena, could I have had the temerity to wrestle with so large a problem. It is entirely possible that there may be many shortcomings in the work here presented; but there may be considerations offered which must be reckoned with by the future economists who may eventually give us the whole truth about the principles and operations of money. The volume should, at least, force the discussion upon crucial points; and the constant supply of references will allow students the opportunity of examining both sides of any disputed question. Indeed, instructors removed from large collections of material, by use of one or two books, such as the Aldrich Report, or Walsh's Measurement of Exchange-Value, could, in connection with the materials given in chapter vi alone, provide a very full course of study on price tables.

In spite of the fact that an attempt has been made to restate the principles for professional economists, it has been my constant belief that most of the subjects could be given a simple exposition adapted to the easy grasp of the layman. With the exception, perhaps, of § 8 in chapter iii (on the use of the disutility of labor, or of final or total utility, as a standard) and the first half of chapter vi (on the study of averages), I have tried to keep the writing free from technicalities, so that it ought to be clear to any reader. The theoretical and mathematical portions just referred to could not well be omitted, on grounds of completeness, in a scientific

treatise; but the general reader, who is unwilling to give due time and thought to these points, will not find himself unprepared for following the general results of the exposition. If I have succeeded in the aim of making myself clear to the general reader, then the professional student will have no reason to complain. The presence here and there of some very simple and elementary statements, such as the definitions of value and price, is due to a desire to provide unity and completeness within the limits of this volume for the unprofessional reader.

I wish to express my obligations to Dr. W. C. Mitchell, to Dr. S. P. Breckenridge, and to Dr. H. J. Davenport for efficient and friendly help in several parts of the work.

Chapter iv has already appeared in the Decennial Volumes of the University of Chicago; chapter x in the "Journal of Political Economy"; and chapter xiv in the "Yale Review."

J. LAURENCE LAUGHLIN.

THE UNIVERSITY OF CHICAGO,
1902

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THE PRINCIPLES OF MONEY

CHAPTER I

THE FUNCTIONS OF MONEY

All things or services, then, which are to be exchanged must be in some way reducible to a common measure.

For this purpose money was invented — and serves as a medium of exchange — for by it we can measure everything, and so can measure the superiority and inferiority of different kinds of work, — the number of shoes, for instance, that is equivalent to a house or to a certain quantity of food. — ARISTOTLE, *Nichomachean Ethics*, Book V, chap. v, § 10.

W. RIDGEWAY, *The Origin of Metallic and Weight Standards* (1892). — E. BABELON, *Les Origines de la monnaie* (1897). — F. LENORMANT, *La Monnaie dans antiquité*, 3 vols. (1878–79). — W. S. JEVONS, *Money and Mechanism of Exchange* (1875), chaps. i, iii, and iv. — A. BAURE, *Théorie et pratique de la monnaie* (1898), I. — F. A. WALKER, *Money* (1878), chap. i. — H. WHITE, *Money and Banking* (1895). — *Report of Monetary Commission*, 1898, Part I, §§ 1–18. — E. NASSE, *Das Geld und Munzwesen*, in Schonberg's Handbuch (1890), pp. 315–317. — C. KNIES, *Geld und Credit*, I (2d ed., 1885), pp. 211–223. — KARL MENGER, *Geld*, in Handwörterbuch der Staatswissenschaften (1892), III, pp. 730–757. — IBID., *Grundsätze der Volkswirthschaftslehre* (1871), chap. viii. — IBID., *On the Origin of Money*, Economic Journal, 1892, pp. 239–255. — W. ROSCHER, *Grundlagen der Nationalokonomie* (1892), §§ 118, 119.

§ 1. A FORMAL definition of money is not desirable at the outset. When a clear understanding is reached in regard to the offices performed by money, the meaning of the word will follow as a matter of course. A confusion of mind upon the separate functions of money has led to the use of the word in many different senses, although writers have often not disagreed concerning the ideas which they intended to convey. For instance, some discussion has arisen as to whether checks should be included in the definition of money. If efficiency as a medium of exchange gives the right to be called money, then checks

On definition of money.

certainly have that right; but it would be nonsense to speak of checks as a standard. And yet the idea of a standard, or common denominator, to whose value all other articles are referred for comparison, is fundamental to the meaning of money. In short, it is possible that some form of what every one recognizes as money may serve only in one, and not in all, the functions of money; while another form may perform all of these functions. But whatever be the definition, by first making exposition of the work actually done by money in any of its forms all hair-splitting dialectics may be avoided. To this end examination will be made of the following three functions:

I. A Common Denominator, or Standard.

II. A Medium of Exchange.

III. A Standard of Deferred Payments.

Writers of authority, like Roscher, Knies, Nasse, and Jevons, have added another function, called a store of value.[1]

Functions of money.

But in this capacity it is not clear that the money commodity serves a purpose different from that of any other commodity which may be more or less imperishable. This function seems to have been illogically added to the general concept of money, because the precious metals, generally associated with the latest evolution of the money material, are durable. Viewed in the light of the proposed function, diamonds and precious stones are equally money. Indestructibility, of course, is a desirable quality in the article chosen as money, but that is quite apart from the nature and the essential functions of money.[2]

[1] Erwin Nasse (Das Geld- und Münzwesen in Schönberg's Handbuch, 1890, pp. 315–317) also suggests that when a state expressly recognizes a certain form of money as a legal means of payment, it becomes "money in the *legal* sense, or the standard money of the state." See also Roscher (Grundlagen, p. 298) and others. Cf. however, *infra*, chap. xiv.

[2] Karl Marx, Capital (Eng. transl., I, 4th ed., London, 1891, chap. iii, pp. 66 ff.) shows some confusion of mind in stating the six following functions of money:

1. A measure of value.
2. A standard of price.
3. An ideal unit of account.
4. A circulating medium.

Knies,[1] among others, introduced still another function, a means of payment, urging it to be distinct from a medium of exchange. It is difficult to see how an act of payment differs in its essence from an act of exchange. Indeed the proposed separate function confuses the act of exchange with the motive leading to the exchange. In the instances cited by Knies — payment of a fine, or tribute, or marriage portion — the only new concept introduced is the motive leading to the payment. Once the determination to convey wealth is reached, the property must be transferred according to the methods existing in the given status of civilization: by payment in kind if in the barter period, or by money if in the period of a medium of exchange.[2] To be sure, the payment of fines and the transference of gifts are greatly facilitated by the use of money, but that is hardly more than an argument for the desirability of a medium of exchange; it is not a justification of a new and separate function of money as a means of payment.[3]

§ 2. Before proceeding to an examination of money, as a standard, or common denominator of value, it will be advisable to state the primary elements of value and price. Value.

If a commodity has qualities which satisfy some need, if it requires effort and sacrifice to obtain it, and if it is transferable, we are ready to give for it other things which we prize, and we say such a thing has value. The exchange

5. The sole form of exchange value (e. g. when hoarded).

6. A means of payment.

The second is practically the same as the first, when coined money is used; although the first is really an abstraction. The third cannot exist ideally, and resolves itself into the first The sixth is a part of either four or five.

[1] Geld und Credit, I Abtheilung. Das Geld, Darlegung der Grundlehren von dem Gelde, Zweite Auflage, Berlin, 1885, pp. 211–223.

[2] Karl Menger, Handworterbuch der Staatswissenschaften, III, 737, is opposed to regarding the means of payment as a separate function of money. So, also, is Nasse, *op. cit.*, pp. 315 ff.

[3] Auguste Arnanné (La Monnaie, le crédit et le change, Paris, 1894) regards money as "an instrument of capitalization," and as "an instrument for transporting wealth," particularly useful in international relations (p. 12). These services, however, can be performed either by a standard or by a medium of exchange.

value of an article is expressed by the quantity of other goods which can be obtained for it. Value in this sense is not intrinsic in anything, because it can be expressed only in comparison with something else. The exchange value of one thing is stated in the ratio of the number of units of it to the number of units of other things which are exchanged for the given commodity. For instance, one beaver skin exchanges for a pound of powder: the value of one skin is a pound of powder, or, *vice versa*, the value of the pound of powder is one beaver skin. If skins become rare, and a beaver pelt exchanges for two pounds of powder, then the value of skins has risen relatively to powder, or — which is the same thing — powder has fallen relatively to beaver skins. That is, exchange value is not intrinsic: it is a relation.

It should be made clear that we can approach the question of prices and the exchange value of money without being drawn into the discussion as to what determines value. Whatever be the cause of value in any two articles — whether final utility, or expenses of production — when we propose to exchange them, the value assigned by antecedent causes is already at hand to assist us in determining the rate of exchange. When we attempt to compare and measure exchange values, we do not need to know the causes of value.

The qualities of a commodity are intrinsic;[1] but its utility, or power to satisfy a human need, arises from a relationship established between men in differing circumstances and these qualities of an article. The exchange value of a thing is its purchasing power or its command over other things, quite irrespective of the reasons for the existence of that power. The intrinsic qualities of goods may not change; but their exchange values may often change. This conception is in accordance with general usage: we all agree that the value

[1] It cannot be admitted, as Walsh holds (The Measurement of General Exchange Value, chap. i), that exchange value is something intrinsic. He says: "Exchange value is a relative quality in material things" (p. 7). This confuses exchange value with the intrinsic qualities which give rise to value.

of A has increased if A has exchanged for more of B. What is it that has increased? Evidently the command over other goods.

If exchange value is the particular phenomenon we are alone concerned with in this study, the definition of what it is, is important. If exchange value is purchasing power, how can we express it? The exchange value of A is quantitatively expressed in the amount of certain other goods for which it will exchange. We can, then, measure the exchange value of A by measuring the quantity of the things it will buy. At this point we are met by the necessity of further analyzing this quantity idea. The utilities of the goods must be taken into account. The same given weight, for instance, might be made up of different proportions of the same commodities.[1] The test of quantity, therefore, cannot be merely such a thing as weight or capacity; it must include the satisfactions obtained from such goods. Ordinarily most persons have fairly fixed habits of consumption; then a continued command over the same quantity of goods, in the same relative proportions in which they have been customarily consumed, means an unchanged exchange value of an article. In such a case, its relation to other things needed by the consumer has been undisturbed.

For practical purposes we get fairly accurate ideas of the exchange value of a particular article in present times by comparing it with the quantity of a given precious metal, either gold or silver. The quantity of the money material for which an article will exchange is its Price. This, of course, is also a relation. For example, if the price of an umbrella is $5 or £1, that is only a way of saying that this article will exchange for the number of grains of pure gold in five American dollars (116.10, or 5 × 23.22 grains Troy), or in an English pound sterling (113.0016 grains Troy). If gold falls in value relatively to an umbrella, a greater number of grains of gold will be exchanged for it; hence, an umbrella has risen in value relatively to gold, —

Price.

[1] Cf. *infra*, chap. vi. § 6.

in other words, its price has risen. That is, any change in the relation between goods and gold would change the price ratios. When, by analogy, one boy on the end of a plank balanced on a fulcrum goes up, the boy on the other end of the plank goes down; and *vice versa*. In a similar way goods and gold are related; and price is the outcome of changes in the two terms to be compared.[1]

§ 3. The commodity chosen as a common denominator of value may register the exchange value of any other article at the time of the comparison. The quantity of the common denominator for which anything will exchange is, as has been explained, its price. Every case of price, then, is an expression of the value of a given commodity in terms of the common denominator, or standard. Appraisal in some known standard may go on whether exchange is subsequently contemplated, or not. "Knowing how much corn is to be bought for a pound of silver," says Jevons, "and also how much flax for the same quantity of silver, we learn without further trouble how much corn exchanges for so much flax."

The common denominator or standard.

Before exchange can take place, however, an answer must be given to the question: At what rate is the exchange to be made? The process of valuation must be gone through with, even in conditions of barter. The necessity of expressing the value of an article in terms of some accepted standard is so evident that the conception of a standard must have appeared in the earliest known records of society.

Philosophically, the use of money as a standard ought to precede its use as a medium of exchange;[2] for the fact

[1] Schäffle makes a penetrating observation that economic life requires an objective representation, or symbol, of quantities of economic value (Das Gesellschaftliche System der menschlichen Wirtschaft, 3d ed., Tübingen, 1873, I, p. 221). He also finds in money, as a standard, a means of representing on a large scale sums of value. Indeed, some go so far as to say that value is secondary in importance to price, and that we could have no distinct concept of value without first having a statement of price.

[2] General Walker, however, assumes the very opposite: "It is evident that gold or silver, or any other article, can only serve as a value-denominator by

of exchange demands as a prerequisite the act of valuation. In a rude state of barter, a rough valuation, to be sure, may have been made between two articles directly offered in exchange, without reference to a third, or standard, commodity; but as soon as more than two or three articles entered the field of exchange, reference to a common denominator became imperative. Hence arose the necessity of estimating value in an article of recognized desirability. How could exchange go on without having first fixed on the rate of exchange? So natural is this operation of the human mind that the evolution of the standard concept must have antedated the concept of the medium of exchange.

Did the standard idea arise first?

On this point distinguished writers have differed. But, among others, Karl Menger seems, in my judgment, to have put the cart before the horse when he states that "money, in consequence of its function as a medium of exchange, is also the thing in which valuations of goods are regularly made." In fact, the whole history of money seems to show the existence of a tendency to use as a medium of exchange the article first chosen as a standard. When Menger points out how persons, to avoid the inconveniences arising from non-coincidence of wants in barter, exchange their goods for a more salable article, because thereby they can obtain more easily other things which they desire, he is in reality giving some of the reasons which led to the selection of an article as a standard. That article, he says, becomes money which, under the circumstances, becomes most salable. For these reasons he points out that money originated as a medium of exchange.[1] The thing

and through being used as the medium of exchange. . . . It is only by being actually used as a medium of exchange, that the power of money to purchase each commodity by turns becomes known." Political Economy, p. 137 and note.

[1] See Grundsatze der Volkswirtschaftslehre (Vienna, 1871), chap. viii, Die Lehre vom Gelde, pp. 250–285; and "Geld" in Handworterbuch der Staatswissenschaften, III, pp. 730–757. Also, Economic Journal, June, 1892, II, pp. 239–255.

E. von Philippovich, Grundriss der politischen Oekonomie, I. Band (Freiburg, 1893), Book III, § 91, pp. 176–179, follows the same general exposition, making the salability of an article the basis of its recognition as money.

which, because of its great salability, came into use as a medium of exchange must have been the article in which the value of all goods which were exchanged was estimated.[1]

Knies,[2] on the other hand, while admitting that a man having a perishable article will desire to exchange it for a durable one, or to exchange a rare pearl for a more salable thing, yet says: "Every exchange of a good requires a comparison of its value with some other good, and this measuring of value will be most often done in that good which is most frequently exchanged. . . . Thus the extension of the medium of exchange goes hand in hand with the use of the same thing to express the value of other commodities."

The doubt as to the origin of money — whether in the concept of a medium of exchange or of a standard — arises, in all probability, from the fact that in early times, when economic processes were little separated, a strong tendency existed to make one and the same article do duty at the given time and place both as a standard and as a medium of exchange. Indeed this tendency has in some part persisted to recent times. And the present discussion might, therefore, be dismissed as frivolous, did it not have a bearing on our subsequent examination of the modern services of money.

The very essence of a period of barter is the absence of a medium of exchange, yet there is considerable historical evidence to show that a standard had been already evolved in the early stages of barter. If so, then the claim that the standard function must have preceded the medium of exchange function is supported by historical inquiry.

"To exchange, to buy, to sell, in brief, to trade," says Babelon truly, "are the operations which necessarily pre-

[1] Wilhelm Roscher, Grundlagen der Nationalökonomie (Stuttgart, 1892), p. 298, implies that money originated from the inconveniences of barter. This was, of course, the *raison d'être* of a medium of exchange, but not necessarily of the standard function. So, also, thought W. B. Hermann, cited by Roscher, *ibid.*, § 118, n. 5. Auguste Beaure, Théorie et pratique de la monnaie, Tome I, Traité théorique de la monnaie (Berlin and Paris, 1898), p. 17, takes the same position.

[2] *Op. cit*, p. 10.

suppose the valuation of the thing exchanged, of the thing bought or sold. The laborer estimates the quantity of his wheat, by weight or volume, which he parts with as against the measure of genial liquid which the wine-grower will deliver to him."[1] Because of the difficulties of barter, because of non-coincidence of wants, and in order to strike a balance in the trade, and bring about an equivalence of several articles of small value for one of large value, it became necessary to compute the large and the small article in terms of some common standard. Obviously, the most desirable, the most "salable," article for the given time and people was adopted as the standard. In early tribal life cattle, fish, grain, arms, bracelets, or feathers desired as ornaments, were used "as a common measure for estimating the value of everything traded in."[2] For instance, in Iceland, about 1413–1426, a pair of shoes was priced at four dried fish, a ton of wine at one hundred dried fish, etc. In the same country, during the Republic, at an earlier time, a certain area of a customary kind of woolen cloth was used as a unit in which the valuation of goods was made; although some silver was then in use. And innumerable cases of like tenor have been recorded in the histories of early money. In the valley of the Tigris wheat was used as a standard of value. Also, in the markets frequented by the vessels of the Phœnicians, Etruscans, and Greeks before the invention of metallic money, edicts stating the value of articles have been found engraved in marble. Among the Chaldean-Assyrians, while simple barter existed, the precious metals were used as a standard of value in which goods were estimated.[3]

Evidence that a standard preceded the medium of exchange.

The habit of using cattle as a standard of value in which the prices of other commodities were estimated — when the standard obviously could not be passed from hand to hand,

[1] Les Origines de la monnaie, p. 2. In fact, all recent historical and archæological studies seem to unite in proving that the standard preceded the function of the medium of exchange.

[2] Babelon, *op. cit.*, pp. 6–7.

[3] *Ibid.*, p. 9. See also pp. 25, 55.

and subdivided as a medium of exchange — became so firmly established that in many countries it survived long after the invention of metallic money. Very evidently cattle, although movable, were not passed by delivery as a medium of exchange. They were first used as a standard of prices. The ox[1] comes down from a time before values were estimated by metallic money, — that is, even before values were expressed by uncoined weights of the precious metals. In the Homeric poems there are no traces of coined money, reference being made only to the ox, or to a weight called a "talent." The latter was the weight of gold (Homer makes no mention of silver) which exchanged for an ox, being the metallic equivalent of the older unit.[2] During primitive times the metals were usually regarded as merchandise, not yet being in any degree set apart to serve as a standard[3] in the terms of which all other commodities were valued. Later the metallic unit equivalent to the ox, being more convenient, came into use. But the coined metal bore the head of an ox, and the very coins themselves were often called oxen.[4] Hence the derivation of the Latin word *pecunia*.[5] Early coins, as Joseph Harris[6] has pointed out, often took their names from the weight of metal contained in them; for instance, talent, mina, drachma, pound, mark, livre, shilling, etc.

Ox the first money.

[1] For many facts on early money, see W. Ridgeway, The Origin of Metallic and Weight Standards (1892).

[2] Ridgeway, p. 10, used the phrase, "a medium of exchange" when he meant "a standard."

[3] "Mr. Gladstone states that in the Homeric poems gold is mentioned as being hoarded and treasured up, and as being occasionally used in the payment of services, before it became the common measure of value, oxen being then used for the latter purpose." Jevons, Money and Mechanism of Exchange, p. 16.

[4] About B.C. 490 the gold Daric was the equivalent of the Stater, of two gold Attic drachmas, of a cow at Delos, of one talent of gold, or of 130 grains Troy. At this reckoning the talent contained the amount of gold in $5.60 of our present gold coins. A female slave was then exchanged for four oxen.

Another measure of weight was the seed of a given plant (κεράτιον), or carat, which was equivalent to $\frac{1}{24}$ of an ounce Troy. To this day English gold coins are made on a basis of $\frac{22}{24}$ fine, 24 carats being fine gold.

[5] Cf. Roscher, *op cit.*, § 118, note 5

[6] Essay upon Money and Coins (1757), pp. 48–50.

Passing from the question of origins to the subsequent development, it will be found that there has never been one standard, immutable and universal, for all periods and all places. On the contrary, there have been standards as various as the climate, geographical position, and stage of civilization of different peoples. In arctic regions the inhabitants naturally find in skins the satisfaction of their chief need, and therefore skins have remained the unit of value to them. To this day in British North America an article is valued at a given number of skins. Indeed coon, rabbit, and squirrel skins (in that order of precedence in value) are yet freely used by the mountaineers of Kentucky as currency. In the tropics, where clothing is not the main want, articles of ornament in the form of shells or of other adornment appear as the most desired wealth. This led to the selection of the cowry shells[1] (*Cypræa moneta*) in tropical regions as a standard of value. After a comparative study of many races, Mr. Ridgeway[2] pithily states the results of experience in regard to the choice of a standard as

Conditions affecting selection of the standard.

[1] Mr. Mill (Book III, chap. vii, § 1) erroneously remarked, on the authority of Montesquieu (Esprit des lois, liv. xxii, chap. viii), that among the African tribes there was in use an artificial unit of calculation, called a "macute," which did not express any real thing. Jevons (*op. cit.*, p. 71) says as to this: "When Montesquieu affirmed that the negroes on the west coast of Africa had a purely ideal sign of value called a *macute*, he misunderstood the nature of money of account. The macute served with the negroes as the name for a definite, though probably a variable, number of cowry shells, the number being at one time 2000. The macute has also been coined in silver pieces of eight, six, and four macutes, struck by the Portuguese for use in their colonies, the macute being worth about 2¾ *d.*" The cowry shells are still in use. Jevons (*Ibid.*, p. 24) says that they, "under one name or another — chamgos, zimbis, bouges, porcelanes, etc., — have long been used in the East Indies as small money. In British India, Siam, the West Coast of Africa, and elsewhere on the tropical coasts, they are still used as small change, being collected on the shores of the Maldive and Laccadive Islands, and exported for the purpose. Their value varies somewhat, according to the abundance of the yield, but in India the current rate used to be about 5000 shells for one rupee." Cf. also Marco Polo (Yule's translation, II, p. 70), who found cowry shells in use in China.

For the discussion on "ideal money," in connection with the Bullion Report and Sir James Steuart, see F. A. Walker, Money, p. 291.

[2] *Op. cit.*, p. 11. Cf. Bucher, Industrial Evolution (1901), pp. 67–70.

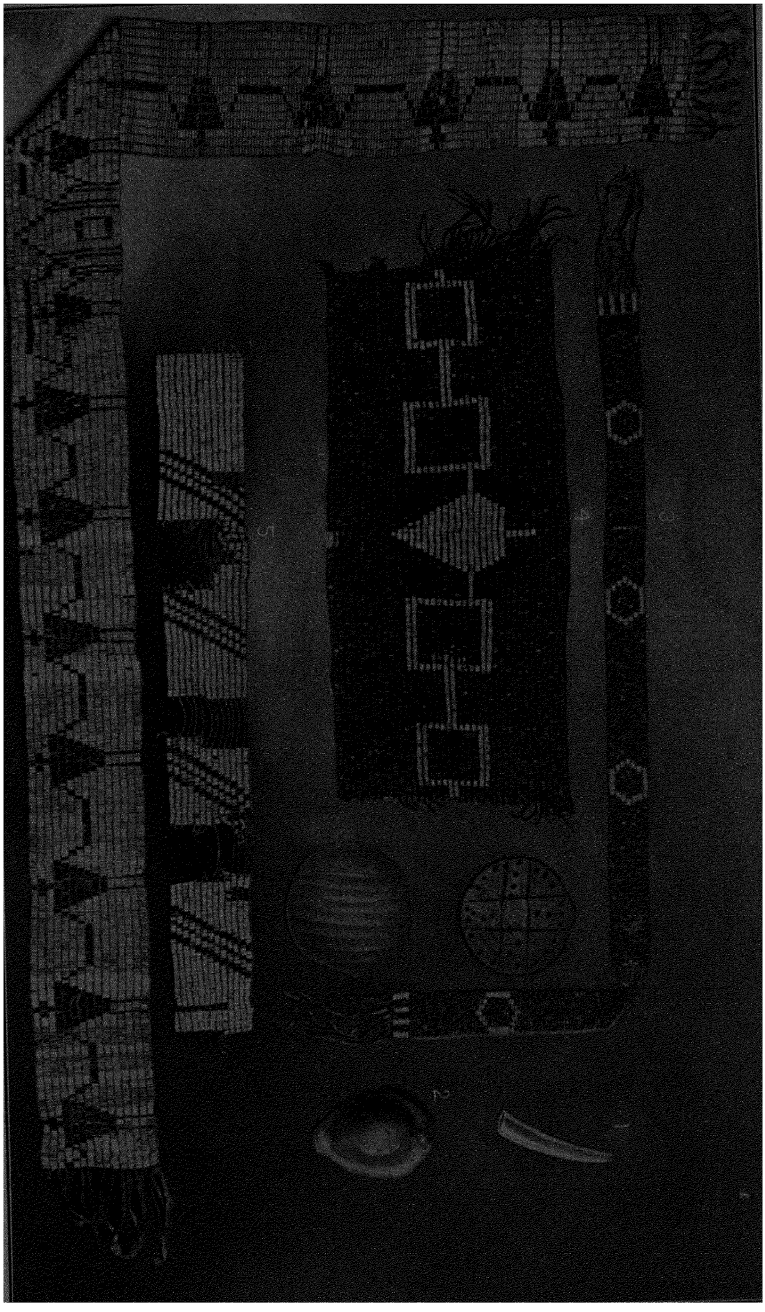
follows: "When in a certain community one particular kind of commodity is of general use and generally available, this comes to form the unit in terms of which all values are expressed."[1]

Wampum as a standard.

In all zones the passion for ornament gives to certain articles a value which has led to their use as a standard. To-day this accounts for the large imports of silver into India and the East, where the metal is hoarded, or converted into anklets or bracelets for women. Among our North American Indians black and white shells were rubbed down, polished, and made into beads, which, when fashioned into belts or necklaces, were called wampum. These wampum belts were used as money, not only because beads were valued as ornaments, but because the belts were antecedently esteemed as the most fitting means of commemorating events of great importance. It is highly interesting to discover that the wampum which became money among the North American Indians was so much esteemed for itself that it was used as a commemorative symbol, quite apart from its use as money. Hence not all wampum was used as money in the form of a medium of exchange. The reproduction here given of the famous pieces of wampum of the Six Nations, belonging to Mr. John Boyd Thatcher, shows that the estimate put upon them as memorials to celebrate such happenings as the treaty of 1784, or the league of the Iroquois, gave them a consideration which led to their adoption as a standard. They did not command regard because they were used as money; but they were used as money because for other reasons they already commanded regard. The ordinary belts used as money varied in value according to their length, color, and lustre. The black was worth a double length of white. So satisfactory was this standard for trading with Indians in Massachusetts that in 1649 wam-

[1] Held, Grundriss für Vorlesungen über Nationalökonomie, 2d ed. (Bonn, 1878), pp. 55–56, explained that some article was made money by custom, and that this custom was strengthened by legal recognition as a standard.

1. Dentalium Shell. — 2. Cowry Shell. — 3. The belt commemorated the first coming of Champlain into the country of the Iroquois, being 2″ × 41″ in its present condition. — 4. The original Hiawatha belt, and a memorial of the League of the Iroquois, being 10.5″ × 25″, strung on buckskin thongs. The white heart represents the Onondaga tribe in the centre united to the Cayugas and Senecas on the right, and to the Oneidas and Mohawks on the left. The body of the belt is composed of purple beads. — 5. Commemorated, in the first half of the sixteenth century, the sight of the first white faces. It is 3¼″ × 28½″. — 6. The belt made to celebrate the Treaty of Fort Stanwix, Oct. 22, 1784, the first between the American Government and the Six Nations. The figure on the right of the house represented Washington as the foremost white chief. It is 5½″ × 72″.



pum was made a legal tender in sums as high as forty shillings in payments between the colonists themselves.[1]

In the earliest days tobacco was used in Virginia as the standard commodity, in terms of which other goods were appraised. The tobacco, in turn, because of trade with England, was at times (even if with evident difficulty) stated to be of a certain value in English money. The Act of 1633 "recited in its preamble that it had been the usual custom of merchants to make all bargains and contracts and keep all accounts in tobacco."[2] Later laws even made tobacco a legal tender for contracts. This is not the place to discuss the causes and effects of a fluctuating standard such as tobacco; but until about the close of the eighteenth century we find that this commodity was used as a standard in which other goods were valued. This service as a standard, moreover, was often independent of its use as a medium of exchange.

Tobacco.

Among the present tribes of California, Powers[3] says: "For money they make use of the red scalps of woodpeckers, which rate at $2.50 to $5.00 apiece, and of the dentalium[4] shell, of which they grind off the tip, and string it on strings, the shortest pieces are worth 25 cents, and the longest about two dollars, the value rising rapidly with the length. . . . It is called *al-li-ko-chik* (in Yarok this signifies literally Indian money) . . . From my own observations, which have not been limited, and from the statements of pioneers and of the Indians themselves, I hesitate little to express the belief that every In-

[1] For a good account of wampum money, see Weeden, Economic and Social History of New England, 1620–1789 (1891), I, pp. 32–46.

Weeden, p. 32, following Trumbull, says the white beads were made from the inner whorls of the shell known as *Pyrula carica* or *caniculata*, common to the south coast of New England. The dark beads were made from the dark part of the shell of the common quahog or round clamshell (*Venus mercenaria*). It was stated that these shells were not found north of Cape Cod.

[2] See H. White, Money and Banking, pp. 5–11, for a good brief account of the use of tobacco as money in Virginia and Maryland.

[3] Quoted by Ridgeway, *op. cit.*, p. 15.

[4] Babelon (p. 11) seems to assume erroneously that these shells were the same as wampum.

dian in the State in early days possessed an average of at least 100 dollars worth of shell money. This would represent the value of almost two women . . . or two grizzly bear skins, or twenty-five cinnamon bear skins, or about three average ponies."

The standard must itself have value.

In fact, the standard in use by a people enables one fairly well to determine from it the stage of civilization which has been reached. In the hunting stage, weapons or skins were used; in the nomadic stage, the unit was selected from oxen, sheep, goats, horses, and slaves; in the fixed farming stage, from grain, houses, and metals (gold and copper[1] having been first adopted). In short, the commodity chosen as the standard has itself always had value to the community by which it has been adopted.[2] Indeed, it is unthinkable that the value of any one article could be expressed in a common denominator which itself had no value. When we say that the given thing exchanges for a certain weight and quality of a standard, we mean thereby that the value of the one is expressed by the amount of the other for which it will exchange. If the common denominator had no value, it could not register the value of another thing, and hence it could not be a common standard.

Service of a standard.

In speaking of a standard, warning should be given that it is not, and cannot be, synonymous with a measure of value. The actual process is as follows: a commodity is chosen as a standard. Given the ratios of exchange of goods to this standard (or common denominator), the exchange values of these goods relatively to each other are conveniently ascertained. But the ratios of exchange between goods and the standard commodity are their prices; so that, given their prices, we can at once obtain the exchange values of goods relatively to each other. This is the essential service rendered by a standard of prices, which is often spoken of as a standard of value.

[1] Cf. Roscher, *op. cit.*, § 119, note 3.

[2] For a most thorough list of articles used by various races in different stages of civilization, see Roscher, *op. cit.*, § 118, note 3; § 119, note 12.

The commodity chosen as a standard has exchange value, or no comparisons could be made with it; but one should not forget that exchange value is not inherent in anything as a quality; it is only a relation, a ratio in exchange. The qualities[1] of an article which yield us satisfactions are intrinsic; but the ratio of exchange between that and another useful article is not intrinsic. Hence we should not speak of the "intrinsic value" of gold, or of any commodity.

If, as we have seen, exchange value is not absolute, but relative, a standard commodity, in and by itself, could not "measure" the general exchange value of other goods. A commodity, or a quality belonging to a commodity, is one thing; its value is quite another thing. In any true meaning of the word, we can "measure" the exchange value of goods only by the exchange value of some standard. But this is not what we get by use of a standard. The exchange value of gold, for instance, is expressed by the quantity of other articles, in certain customary proportions, for which it will exchange. What we often speak of as the value of gold is its exchange value relatively to only a part of the goods in the world, — that part usually quoted in accessible price lists. The exchange value of gold varies with the number and kind of things priced in it. By pricing an article in gold, the value of that article in relation to other commodities is not thereby "measured" by gold. In such a case gold serves only as a common denominator, and not as a "measure of value," because it does not thereby state the relationship of exchange which that article bears to all other exchangeable goods. All that is obtained is the exchange ratio between gold and that particular commodity; and it is only by subsequent inference therefrom that one may obtain an idea of the exchange relations of that given article to all other goods that may also have been priced in gold. Moreover, there could of course be no absolute standard for "measuring" value, since any

A standard does not measure value.

[1] The relationships established between those qualities and mankind could not be regarded as intrinsic; that is, utility itself is not intrinsic.

one article, chosen as a standard, would itself vary in value; consequently the values of other goods would be compared with a standard itself constantly varying. Not infrequently one hears of an argument in favor of gold as a standard that it is as "invariable as a yardstick." This statement contains the fallacy of supposing that exchange value is as absolute as linear length, when it is only a relation of one article to another expressed quantitatively.[1]

§ 4. In contradistinction to a standard, or common denominator, which itself has value, the function of the medium of exchange is to serve as a means by which transfer is made from goods of one kind to goods of another kind.[2] Unless a common denominator existed, we should have no means of getting a concrete expression of value in general, — a conception of price being necessary to a practical comprehension of value. Until a valuation in the money commodity has been made, we cannot have convenient exchange. Price is dependent upon the conception of a standard; the medium of exchange can come effectively into play only after the price valuation has been made. But a standard could exist even in a stage of barter. Not so with a medium of exchange. The latter came into use because of two difficulties attendant upon barter: (1) the inconvenience arising from lack of coincidence in barter; and (2) the indivisibility of ordinary goods.

The medium of exchange.

The want of coincidence in barter, which gave rise to the need of a medium of exchange, has been well described by Mr. Jevons.[3] It is related of the naturalist Mr. Wallace during his travels in the Malay Archipelago, "that in some of the islands, where there was no proper currency, he could

[1] Cf. F. A. Walker, Money, Trade, and Industry, p. 32; and his Money, p. 8. Cf. also Knies, *op. cit.*, p 150.

[2] When Roscher, followed by some recent writers, says, "In the social economy money possesses the significance which blood has for the animal body" (*op. cit.*, § 117), he can be thinking of only one function of money, the medium of exchange. As a standard, it serves purposes which would mix the metaphor.

[3] *Op cit*, pp 2–4.

not procure supplies for dinner without a special bargain and much chaffering upon each occasion. If the vendor of fish or other coveted eatables did not meet with the sort of exchange desired, he would pass on, and Mr. Wallace and his party had to go without his dinner. . . . The first difficulty in barter is to find two persons whose disposable possessions mutually suit each other's wants. There may be many people wanting, and many possessing those things wanted; but to allow of an act of barter there must be a double coincidence, which will rarely happen. A hunter having returned from a successful chase has plenty of game, and may want arms and ammunition to renew the chase. But those who have arms may happen to be well supplied with game, so that no direct exchange is possible. . . . Sellers and purchasers can only be made to fit by the use of some commodity . . . which all are willing to receive for a time, so that what is obtained by sale in one case, may be used in purchase in another."

Lack of coincidence in barter.

The same author fitly illustrates the second difficulty which arises in barter from the indivisibility of most goods. "The tailor, as we are reminded in several treatises on political economy, may have a coat ready to exchange, but it much exceeds in value the bread which he wishes to get from the baker, or the meat from the butcher. He cannot cut the coat up without destroying the value of his handiwork. It is obvious that he needs some medium of exchange, into which he can temporarily convert the coat, so that he may give a part of its value for bread, and other parts for meat, fuel, and daily necessaries, retaining perhaps a portion for future use."

Indivisibility of goods.

The process by which a generally acceptable and easily salable commodity came into use as a medium of exchange is admirably described by Karl Menger.[1] A person possessing goods not easily exchangeable at a given time and place for desired satisfactions will have a motive for first exchang-

[1] Economic Journal (1892), p. 248.

ing his possessions for a generally desired commodity, not because he desires it *per se*, but because he thereby draws nearer to accomplishing his end; since when he obtains a highly salable article, even if it be not the article needed, he can then more easily advance to the final act of obtaining the desired commodities which he had first in mind. Hence:

> "Those commodities, which relatively to both space and time are most salable, have in every market become the wares, which it is not only in the interest of every one to accept in exchange for his own less salable goods, but which also are those he actually does readily accept. And this superior salableness depends only upon the relatively inferior salableness of every other kind of commodity, by which alone they have been able to become *generally* acceptable media of exchange."

Just as no article which does not itself have exchange value can be a common denominator of value, so nothing which is not itself valuable[1] can serve as a medium of exchange. If, in order the better to obtain other goods in exchange, one gives economic goods for money, one should be assured that the money has equal value with the goods parted with. No one would consciously give away commodities of value for a medium of exchange which was notoriously lacking in value, and which he might possibly be obliged to hold for a time. Otherwise the whole purpose of exchange would be defeated; since for a worthless medium of exchange[2] one could not obtain other goods.

As soon as any division of labor appeared in society, the need of a medium of exchange became evident; and this need has increased in intensity with the modern development of division of labor. So long as men produced all their own satisfactions, no exchange was necessary, and no medium

[1] Cf. Knies, *op. cit.*, pp. 178–191.

[2] Paper money is not an exception to this principle, if the value of the paper is dependent on the coin in which it is redeemable; and hence the comparison is really made between a commodity and the quantity of coin generally believed to be associated with the paper. For further discussion of this general point, see chap. xv.

of exchange was in circulation.[1] It is only as we follow the complicated division of modern labor, with its time element in production, that we realize how essential to society is a medium of exchange. And yet the social need which is served by money in this function is not a primary, but a secondary need. The first economic object of men is by processes of production to secure material satisfactions; and money is only an intermediary, or convenient, aid in getting from goods we have to those we have not. We could get on, at the sacrifice of some convenience and time, without a medium of exchange, but not possibly without the primary results of production. The utility of money as a means of abridging effort and of aiding in exchanges becomes, however, so great in modern industry that it is not easy to minimize its essential importance. And the constant presence of money before the eye of every trader, as a medium of exchange, easily leads him to regard this function as the only and most important one in money. Hence the ease with which men sometimes set money above the products to be exchanged; and hence the inclination, for this reason, to estimate an abundance of money as of more importance than an abundance of goods, thus making the means greater than the end.

Medium of exchange dependent on division of labor.

In early times that article of general desirability which served as a standard of price was, in most cases, also used as the medium of exchange. The distinction in that period between the common denominator of value and the medium of exchange was not sharp; and the physical qualities of the money commodity needed for one function were, as was to be expected, mixed with those needed for the other. In recent years, however, we get no clear insight into the evolution of money, if we do not clearly distinguish between these

[1] This condition existed in central Pennsylvania in the first half of the nineteenth century. A legal standard existed, but no money circulated; and each farmer produced his own food, clothing, shelter, etc. (From private memoirs in my possession.)

two functions. It will appear that entirely different things are used for the different functions: for instance, gold may be adopted as a common denominator, in which prices are expressed; while goods may in fact be exchanged by banking devices without any but the slightest use as a medium of exchange of that article which has been adopted as the standard. In the development of these separate functions, it has become clear that money has been evolved out of the needs of society as a means of lessening human effort. Indeed, the extent to which the distinctions in the functions of money are worked out in any country is a fair test of the division of labor, the variety of wants and products, and the industrial civilization of its people.

Evolution of media of exchange.

Exchange of goods has taken place, as we all know, not merely between different persons in the same region but between persons in widely separated regions. International exchange was but a case of extended division of labor. Wherever law and order were weak, or wherever transportation became unsafe, a premium at once arose as a stimulus to save the unnecessary use of the common denominator. Itself having value, the risk of its loss in transportation by land and sea, the fear of robbery, theft, or accident, especially when large sums were to be passed, gave an ever present reason for avoiding the actual offer of the valuable standard as a medium of exchange. Consequently, the continuous pressure to discover some means of exchanging goods without transferring the standard itself as a medium of exchange was always present in the human mind as soon as commerce began to develop to any extent. We see, therefore, in response to the monetary needs of mankind, a natural evolution which displayed itself in the establishment of the early banks, such as those of Venice, Barcelona, and Amsterdam, where coins were deposited and the title to the coins (or common denominator) was transferred without their removal. Banks, therefore, arose in response to a need of the community, originating in an effort to abridge labor and save loss. In like manner, the

invention of the bill of exchange[1] by the Jews of Lombardy in the fourteenth century was another step in the same evolution, by which the actual transfer of the valuable standard was saved by devising another medium of exchange. In quite recent times we shall see this carried still further by the notes of banks and governments, and finally by the deposit currency of the check and deposit system.

The evolution of the material actually used as money is subsidiary to the evolution of the functions already described, and it has been dependent on them. A long list of articles such as cattle, furs, salt, tobacco, copper, silver, and gold, have been used as money in different ages by different peoples; the choice in any one case reflecting the stage of civilization and of industrial development. With the mere history of these we are not now concerned. The ideal requisites for a perfect money material have been well stated, among others, by Jevons;[2] but it is necessary to separate these, accordingly as they apply to a standard, or to a medium of exchange:

Money material.

I. Standard
1. Value.
2. Stability of Value.

II. Medium of Exchange
3. Portability.
4. Indestructibility.
5. Homogeneity.
6. Divisibility (and reunion).
7. Cognizability.

It will be seen at a glance that, where the medium of exchange is different from the standard, the requisites cannot be indifferently applied to both. Articles whose prices are expressed in terms of the standard, may be actually exchanged by means which do not call the standard into use.

[1] "A bill is nothing but an order to pay money addressed by the drawer to the drawee, or person on whom it is drawn, specifying the amount to be paid, the time of payment, and the person to whom it is to be paid." Jevons, *op. cit.*, p. 300.

[2] *Op. cit.*, chap. v.

In modern conditions the last five requisites really apply mainly to the large and small coins (or "change") passed from hand to hand in small transactions.

In finally agreeing upon the precious metals[1] regard was had to the reasons properly associated with the necessity of coinage (see chapter ii). In order to avoid the delay and annoyance of weighing and assaying at each transaction the money commodity, the material out of which coins were made must be such as to take and retain a stamp certifying to its weight and fineness.

Standard of deferred payments.

§ 5. As soon as legal conditions permitted any permanence of contracts, and as soon as the time element entered materially into industrial relations (especially with the extension of division of labor), the third function of money as a standard of deferred payments assumed importance. This function, however, is not different from that of a simple standard, except that the former covers comparisons in which the time element appears. By some it might be regarded only as a case of the standard function. It is not important, however, how it is distinguished, provided only that the problems arising from the time element in contracts shall receive full attention.

To express the exchange value of goods relatively to the common denominator at any given time affords no difficulty; that is, prices in a given market on a given day are simple phenomena. But when agreements which run over considerable periods of time are entered into to pay and to receive

[1] Knies (Geld und Credit, I, chap. i) summarizes the reasons for choosing the precious metals as follows:

1. Their utility as consumption goods. People of all times have preferred them for ornament, etc.
2. The want they satisfy not being an absolute necessity, their value is remarkably stable.
3. High value in small bulk, and hence easily transportable.
4. Durability and indestructibility.
5. Easily divisible without loss.
6. Homogeneous.
7. Capable of receiving a stamp.

certain amounts of the common denominator many difficulties arise from the well-known fact that the rates of exchange between the common denominator and other goods may change widely during the period of the contract. Over even a comparatively short space of time, it is impossible that value ratios should remain unchanged. Under the influence of modern discovery and invention every commodity is constantly affected by alterations, from week to week or from year to year, in the conditions affecting its production. Since no single article can escape these changes — not even that one chosen as the common denominator — it goes without saying that no article exists which can possibly be a perfect standard of deferred payments. No article could possibly adjust its own changes to the infinite number and range of changes going on in the many goods compared with money. This inherent difficulty in finding a standard for time payments is the one around which much of the monetary discussion of recent years has centred. It has led to the proposals of bimetallism, the multiple standard, and other schemes which will be fully discussed hereafter in their proper place.

CHAPTER II

COINAGE

It is correct to say that, in general, numismatists have shown themselves excellent archæologists and historians, but that they have given little attention to the economic laws of money. — BABELON, *Les Origines de la monnaie*, p. viii.

W. S. JEVONS, *Money and Mechanism of Exchange*, chaps. vii, viii. — C. KNIES, *op. cit.*, pp. 192–210. — E. NASSE, *op. cit.*, pp. 315 ff. — F. A. WALKER, *Money*, chaps. ix, x (pp. 181–188), xi. — H. WHITE, *Money and Banking*, chap. ii.

§ 1. SINCE the purpose of the present volume is to state the general principles underlying all kinds of money, the second volume being devoted entirely to metallic money, only such matters of coinage will be discussed here as have a bearing on our immediate study. Obviously the mechanical and chemical details of minting which enter largely into practical coinage need not be taken up.

Reasons for coinage.

The reasons why coins were in course of time universally resorted to are simple. When the choice of the community had settled upon some article to be used as money, at each transfer the quantity and quality of the medium of exchange had to be determined to the satisfaction of buyer and seller. This in itself was one reason why resort was had to some metal, either iron, copper, silver, or gold; because they best satisfied the requirements of homogeneity, cognizability, divisibility[1] (and reunion), indestructibility and portability.[2] To avoid the necessity of

[1] The extreme difficulty of melting platinum, and its limited supply make it an inferior money metal. Hence the final failure in 1845 of the Russian attempt (begun in 1828) to use platinum.

[2] The advantages in regard to portability and in regard to large value in small bulk of gold over all other metals, such as iron, copper, and silver, lay at the bottom of the early preference shown for gold when it could be had for coinage; while at the same time it was equally homogeneous, recognizable, divisible, and indestructible with any other metal.

testing the fineness and weighing the quantity of a money metal at each act of exchange, coinage was necessarily resorted to. Coins, therefore, should carry on their face indisputable evidence of (1) their fineness, (2) their original weight, and (3) the absence of any subsequent alteration. Similarly, the printing of paper money should be (1) on distinctive paper, (2) from plates as secure from counterfeiting as possible, and (3) containing numbers, marks, and signatures which unmistakably indicate the responsible issuer. The purpose in coinage is to save the public inconvenience and delay; this service is in no sense to be regarded as performed in the interest of the owner of bullion.[1] When a state attempts to consider the possibility of influencing the value of a metal in the interest of the bullion owner, it is blind to the general interests of the public, which should be paramount.

§ 2. The history of the evolution and manufacture of coins into their present forms is not pertinent to the present study. Suffice it to say that a vast quantity of literature, especially in the infancy of political economy, was called into existence, dealing chiefly with what must now be regarded as unessential details of coinage, recoinage, seigniorage, and the like.[2] These matters will be treated with brevity.

At first coins were moulded, later hammered, and lastly manufactured with special machinery, so that the designs were artistic (in some cases) and difficult to counterfeit, while the edges were milled to prevent clipping. Ancient coins had rough, unstamped edges; and Jevons[3] tells us that in 1573 Charles IX., of France, issued the first coin marked with a legend on the edge. Technique of coinage.

[1] A state likewise supervises a banking system to save the public the inconvenience and delay involved in examining into the security of each note, not in the interest of the banks, nor primarily even to protect note-holders against loss. Cf. Report of Monetary Commission, 1898, p. 165.

[2] Cf. Walker, Money, chap. ix.

[3] *Op. cit.*, p. 60 English coins were first marked on the edge in 1658 or 1662. Jevons mentions the steam-coining press of Boulton and Watt, and the

The size of coins should be adapted to the weight and value of the metal used. The large copper coin of Sweden in the eighteenth century, measuring $7\frac{1}{2}$ inches square and weighing $3\frac{1}{2}$ pounds, was obviously an absurdity. For opposite reasons our own gold dollar piece has been found to be highly inconvenient and has been discontinued. To be satisfactory the coinage should also allow the use of that metal which permits coins of small denominations to have a size convenient for daily handling. Consequently it has become almost universal to authorize the issue of larger denominations in gold, and of subsidiary money in silver, using nickel and copper for minor coins.

Limit of tolerance.

Because it is almost impossible to manufacture two coins exactly alike, the officials of the mint are allowed by law a small limit of tolerance between the actual and nominal weight of each coin. Abrasion by use and wear, however, may cause a still wider variance of the actual from the legal weight. In most countries the point to which this divergence can go, while allowing the coins to pass at their face value, is carefully fixed in the regulations of the mint.[1] In most instances, if below the limit of tolerance, the coins are accepted only according to the weight of the metal contained in them. If this be not done, the coinage soon deteriorates, and an anomalous condition of trade arises, in which coins are always regarded with suspicion.

The precious metals, moreover, are too soft in the pure state to stand the wear of ordinary usage; therefore the coins are toughened and hardened by alloy. In the United

knee-joint press of Ulhorn and Thonnelier as great advances in the mechanism for striking coins.

[1] In Great Britain the annual trial of the Pyx holds the mint to close account. Certain numbers of coin of each denomination after each day's work are placed in a box called the Pyx, and annually an official board makes a rigid test of the accuracy of the coinage. The same kind of annual trial is used at our mints. The standard Troy pound weight is kept in the Chapel of the Pyx at Westminster, and the American Mint standard was taken from that, in 1827 (see section 3548 Revised Statutes). The English limit of tolerance on the sovereign is 0.2 grain (on a standard weight of 123.27447 grains), and the test shows, often, a divergence of only 0.017 grain.

States, and in most other countries, $\frac{1}{10}$ of the standard, or full, weight of a coin is alloy, and $\frac{9}{10}$ pure metal. That is, the pure metal being called fine, our coins are spoken of as $\frac{9}{10}$ fine.[1] Since the value of the alloy is not counted in the value of the coins, the standard weight, including both the pure metal and the alloy, is not the proper designation of quantity to be associated with a coin, the amount of pure metal being the only truth of general importance to be kept in mind. For instance, the silver dollar of the United States should be generally known as the dollar containing $371\frac{1}{4}$ grains of pure silver, not $412\frac{1}{2}$ grains of standard weight.

§ 3. Since the alloy does not enter into the computation of the value of the coin, and since it is furnished as a part of the expenses of coinage by the mint, it is evident that the value of the coin differs from the value of the metal it contains only by the expenses of manufacture. The difference in value between coins and bullion is much the same as between wheat in bags and wheat in bulk. This difference has been called "seigniorage;" but it would be better to speak of it as the expenses of coinage, or brassage. Seigniorage, in its common usage, has been applied to the difference, no matter how great, between the nominal face value of the coin and the actual market value of the pure metal contained in the coin. *Seigniorage.*

The word "seigniorage,"[2] however, has come to include two things which should be kept distinct: (1) brassage, and (2) seigniorage proper. Brassage should be used to express the actual expenses of coining the metals at the mint;

[1] This standard of fineness was adopted in 1837. The English gold coins contain $\frac{1}{12}$ of alloy, and $\frac{11}{12}$ of pure metal or 916.66 fine; while English silver coins have 11 oz. 2 dwts. pure metal and 18 dwts. copper to the pound Troy, or $\frac{925}{1000}$, or $\frac{37}{40}$, fine. The limit of tolerance as to fineness is $\frac{2}{1000}$. The Tower pound used prior to 1527 contained 5400 grains; the Troy pound substituted by Henry VIII. contained 5760 grains.

[2] The charge for manufacture had a Gothic, not a Roman origin (Liverpool, Coins of the Realm, p. 116). It was continued in England to 1666, when gratuitous coinage was introduced. In the United States gratuitous coinage of gold was adopted in 1875.

and (2) seigniorage should be employed to indicate the profit which the lord, or sovereign, by virtue of his prerogative, claimed, over and beyond the expenses of manufacture.[1] In modern usage, seigniorage should be the difference between the actual market value of the metal in the coin, on the one hand, and the face value, less the brassage, on the other hand. For example, the expenses of coinage for the American silver dollar may be a few cents per piece, while the seigniorage is the difference between its present face value of 100 cents in gold (less brassage) and the market value in gold of the 371¼ grains of pure silver contained in it (varying, of course, but now about 42 cents).

Brassage.

For a time there was a voluminous discussion[2] as to whether the government should pay the expenses of coinage, it being favored on the ground that it was a public service, the payment for which should fall upon all citizens. This unimportant question has been generally disposed of by the action of most modern governments in assuming the cost of the minting. Thus there has come to exist what may be called "gratuitous coinage;" and there is no divergence, in countries which follow this practice, between the value of the coin and the value of the bullion, beyond the loss of interest due to waiting for the metal to be coined. Gratuitous coinage, however, should be carefully distinguished from the ordinary usage of "free coinage;" the former means the manufacture of coins without charge to the owner of the bullion, while the latter implies the right to present a metal in unlimited quantities at the mint to be coined into legal forms of money.[3]

Gratuitous and free coinage.

[1] Cf. Liverpool's Coins of the Realm, p. 115.

[2] Cf. F. A. Walker, Money, chap. x, and other authorities.

[3] It might here be pointed out that those are in error who speak of a price for gold sovereigns at the Bank of England as an evidence of their scarcity; since it is based on nothing more than a form of seigniorage. The English mint makes no charge for coining sovereigns, and an ounce of fine gold would be coined at the full equivalent into £3 17*s.* 10½*d.* Instead of taking bullion to the mint, it is customary to exchange it at the Bank of England directly for

There may be free coinage of gold, and yet no gratuitous coinage.[1]

Token coins.

Besides the chosen coin, such as a dollar, or sovereign, which may have been adopted as a unit in the monetary system, experience has led to the stamping of fractional, or subsidiary coins (usually of silver) which have a seigniorage greater than the mere expenses of coinage. It has been thought that by reducing their value they would not be melted and withdrawn from circulation when changes in the market ratio affected the use of either the larger gold or silver coins. So long, for example, as two halves, or four quarters, contained as much silver as a dollar piece, the same events which drove out the larger would drive out the smaller denominations. Too great a seigniorage, however, in fractional coins is a temptation to private coinage. All coins whose seigniorage is greater than the expenses of coinage fall under the designation of token coins.[2]

Debasement of coinage.

The debasement of the coinage, which was a marked feature of monarchical rule in past centuries, sometimes undertaken to reduce the burden of the Crown's indebtedness, could be accomplished in two ways: (1) by retaining the old standard weight, and reducing the amount of pure metal while increasing the alloy; and (2) by openly reducing the standard weight, while retaining the old proportion of alloy to pure metal. The more unscrupulous rulers resorted to the former method, because it was hoped to keep the reduction more or less a secret from the common people. The money-changers, however, were quick to discover such frauds, and the secrecy could not long exist. Much space would be needed to recount the various debasements enforced in many countries, when absolutism gave the

coins; but the Bank protects itself for the possible delay in coinage by giving for an ounce of gold only £3 17*s.* 9*d.* (according to the Act of 1844). With some minor charges, the cost of getting coin for bullion is about ½ of one per cent. See Jevons, *op. cit.*, p. 116.

[1] In the United States from 1873 until 1875, there was a charge of ½ of one per cent for coining gold, but during that time there was free coinage of gold.

[2] Cf. *infra*, chap. xv.

Crown, or lord, authority over the coinage without control by any parliament.

§ 4. The relation of the state to the coinage has been the source of some confusion of mind. Sometimes it has been thought that the mint buys the metal, and that there is thus created a demand for it. In truth, the function of the mint is only one of public convenience. The ownership of the bullion remains in the hands of the one who brings it to be coined, and the mint merely takes it long enough to assay and coin it. Then the coins, or an equivalent number, belong to the person presenting the bullion at the mint. In cases of token money, to be sure, the state buys the bullion and coins it at its own expense; and it gains the whole of the large seigniorage (less the brassage), because it issues the coins at their nominal face value.

Function of a mint.

Granting the imperative necessity of a proper coinage system, by whom should it be supplied, — by the state, or by private persons? In favor of the latter theory it has been "held that just as people go by preference to a grocer who sells good tea, and to a baker whose loaves are sound and of full weight, so the honest and successful coiner would gain possession of the market, and his money would drive out inferior productions." [1] On the other hand, Jevons argues that this view overlooks Gresham's Law, that the worse money drives out the better. As we shall see later (chapter xii), only if good and bad coins are given equal purchasing efficiency (*e.g.*, in paying duties at the Treasury) would the worse money drive out the better. If there were no force such as self-interest which constrains one to use inferior coin in scaling debts, and if there were free choice, no doubt the better coin would circulate. The ground for assigning the sole power of coinage to the state must, therefore, be based on other grounds than those given by Mr. Jevons. The fact that coins are required as a convenience for the general public — a matter requiring vigilance in the common interest compar-

Authority to coin.

[1] Herbert Spencer. Cf. Jevons, *op. cit.*, p. 64.

able with protection to life and property — seems to be reason enough why the responsibility of indicating the exact weight and fineness of coins should be vested in the authority chosen by the people. In order that commerce and trade may go on uninterruptedly, the state should insist upon the integrity of its coinage as certainly as it should upon the preservation of the peace. From this it follows that no private persons should be permitted to introduce possible uncertainty into the operations of a machinery which should be placed beyond all question as to its steadiness. If several private coins were allowed to pass current, the public might not all be equally well informed as to the reliability of the best coiners, and then coins would require testing and weighing at each exchange, just as with the metal in early times; therefore the very object of coinage, whereby weight and fineness should be indicated by a responsible authority, would be defeated. Once the system has been adopted and come into general use, the persistence [1] of monetary habits — a thing of such importance that it cannot easily be exaggerated — demands adhesion to a single and unvarying system of coins. The case is so clear as to need no further discussion.

Moreover, in our constitutional law, the right of coining has been already regarded as the function of the sovereign, or state. To Congress our Constitution has given the right "to coin money, and regulate the value thereof." "To the executive government and its scientific advisers," says Mr. Jevons,[2] "who have minutely inquired into the intricacies of the subject of currency and coinage, the matter had better be left. It should as far as possible be removed from the sphere of party struggles or public opinion, and confided to the decision of experts. No doubt, in times past, kings have been the most notorious false coiners and depreciators of the

[1] In the United States, for instance, shillings are yet used as a money of account, although no such coin has ever been issued since the formation of the Union in 1789. The actual silver shillings (among others, one 12½ cents, another 16⅔ cents) used in the colonies gave the reason for a name and a method of computation which has persisted for over a century.

[2] *Op. cit.*, p. 65.

currency, but there is no danger of the like being done in modern times. The danger lies quite in the opposite direction, that popular government will not venture upon the most obvious and necessary improvement of the monetary system without obtaining a concurrence of popular opinion in its favor, while the people, influenced by habit, and with little knowledge on the subject, will never be able to agree upon the best scheme."

In coining money, the government can regulate[1] the value thereof only in the sense that it may select the metal, and determine what weight and fineness shall be used in the unit of its monetary system, and by what name that unit shall be called. The unit of value thus chosen, moreover, means only that the exchange value of a certain number of grains of fine metal has been adopted as the unit of the coinage system, thereby designating the term in which all prices and accounts are likely to be kept.[2] This exchange value, taken as the unit of the system, may or may not be expressed in a particular coin. For instance, the value of 23.22 grains of pure gold may be the unit given the equivalent of a dollar in our monetary system, and yet only gold eagles may in fact be coined; but one-tenth of an eagle would of course be 23.22 grains. And if it were possible to secure another metal, like silver, whose value relative to gold could not change, an attempt might also be made to express the unit in the number of grains of that other metal whose exchange value was the same as that of 23.22 grains of gold.[3] Exchange value can be expressed only by something having exchange value; and exchange value is not intrinsic. The

State cannot fix the value of the unit.

[1] It will be recognized the moment it is mentioned that no government can, in any economic sense, regulate the value of a metal whose supply and demand are regulated by forces operating not alone in any one country, but throughout the world.

[2] Wolowski pointed out that it is the value of the gold coin, and not the gold coin itself, which is used as a standard in expressing the value of a bushel of wheat. Question de l'or, p. 7.

[3] This was the case in the first American Coinage Law of 1792. In France the unit of value is the franc in gold, but it is coined only in five, ten, and twenty-franc gold pieces. Cf. Jevons, *op. cit.*, p. 71.

measure of capacity, for example, is a bushel in size; no one would think of confusing the capacity of a bushel with the oak or elm of which the bushel measure was composed. It is not the wood or metal which in the yardstick is a measure of length, but the linear distance called a yard, which is represented in the given length of wood or of metal. The exchange value of 23.22 grains of gold is not invariable; it is subject to constant change. The standard unit in gold or silver may exchange for more or less of other commodities. It is a common unit in which the exchange value (or price) of all goods may be expressed and compared. It makes no difference what the absolute weight of the unit is when first chosen; it is, however, of vital importance that when agreed upon it should be exactly fixed and permanently adhered to.

The only other main circumstance to be kept in mind in agreeing upon a unit is that it should correspond as exactly as possible with those of other commercial countries in weight and fineness, in order to facilitate international computations by travellers and traders. This, however, is only a matter of convenience, and is not of indispensable importance; since the equivalents of coins of the same material but of different weights raise only the difficulties belonging to an arithmetical computation. If coins of all countries had the same scale of weights and fineness, it would be more convenient to obtain equivalents, because the arithmetical computation would be unnecessary.

CHAPTER III

THE STANDARD QUESTION

It is the interest of every country, that all the current money of it should be of one and the same metal; that the several species should be of the same alloy, and none of a baser mixture: and that the standard once thus settled, should be inviolably and immutably kept to perpetuity. For, whenever that is altered, upon what pretence soever, the publick will lose by it. — JOHN LOCKE, *Considerations on Interest*, p 290

W. S. JEVONS, *op. cit.*, chap. xxv. — C. KNIES, *op. cit*, pp. 396–431. — J. S. NICHOLSON, *A Treatise on Money* (3d ed., 1895), pp. 19–30. — *Report of Monetary Commission*, 1898, Part I, §§ 19–41. — *XIII Annual Report U. S. Department of Labor*, 1898. — *Annals of American Academy*, 1892–1895. (See section 8, *infra*.)

§ 1. CONCERNING transactions begun and ended at a given time and place, the question of a standard is simple, and what has been said is sufficient; but division of labor, the complexity of modern industries, and the existence of contracts[1] running over a period of time, have introduced into monetary operations the time element in a way which produces special problems of right and justice. In fact, most of the monetary discussions of the last few decades have hinged on questions arising out of the standard in its relation to time contracts. They have lain at the bottom of the whole bimetallic question. The standard question is, however, not merely a matter of gold and silver; it goes further than that, and raises the general problem of the value of money. The essential idea in it has long been familiar in the common requisite of stability of value set up for good money — and sometimes it was hinted at by those who emphasized a separate function of a store of value, although the latter is of a different category.[2]

[1] Transactions finished on the spot, begun and completed at one and the same time, where money passes from hand to hand, correspond to the legal conception of Executed Contracts; those in which a period of time elapses between the making and the fulfilling of the agreement, correspond to Executory Contracts. The standard question, therefore, has to do with the latter.

[2] Knies, *op. cit.*, in chap. xii, points out that the law in fixing penalties years ahead, in making regulations for the arrangement of the property of minor

The requirements of a perfect and always just standard for deferred payments are such as to make impossible their realization in any one commodity. As has been already explained, no unit of measurement for exchange value can be found which is not itself variable.[1] A commodity having exchange value may vary in value either from causes affecting itself or from causes affecting the articles with which it is compared. Of course, this is equally true of the commodity chosen as money, even the one which is generally used as a standard of deferred payments. The ratios of exchange between a money commodity of any kind and other goods are constantly changing during the lapse of even short periods of time; the change in methods of producing a single staple article change the purchasing power of money over that article and, thus, the general purchasing power of money. It goes without saying that no commodity exists which can so change that it can possibly adjust itself to constant changes in the ratios of all other articles. Hence a permanent and general level of prices is impossible. No chosen article can by any stretch of the imagination maintain at the end of a time contract the same exchange value relative to goods, rents, and wages of labor which it had at the beginning. The desirability — and hence the possibility — of keeping a given level of prices to the advantage of both debtors and creditors has probably arisen from the belief that prices can be regulated wholly by operating upon the standard in which prices are expressed. This is

No perfect standard possible.

heirs, and the like, assumes that the standard is invariable. In such actions Knies finds that the law accepts the existence of such a function as a store of value in money.

[1] "Strictly speaking, there can be no permanent measure of value. A measure of value should itself be invariable; but this is not the case with either gold or silver, they being subject to fluctuations as well as other commodities Experience has indeed taught us, that though the variations in the *value* of gold and silver may be considerable, on a comparison of distant periods, yet, for short spaces of time, their value is tolerably fixed. It is this property, among other excellences, which fits them better than any other commodity for the uses of money." Ricardo, Works, p. 270, note. Cf. also, Wolowski, Question de l'or, pp. 7 ff.

certainly fallacious as well as impracticable.[1] Since price is a value ratio, its relation can be changed by forces touching either of the terms in the ratio; a fraction can be changed by changes in either the numerator or in the denominator. In understanding the standard and its relation to prices, one cannot insist too strongly upon always keeping in mind the fundamental value ratio of price. The failure to do so has led to strange vagaries by eminent writers on the subject of money.

§ 2. Before making up our minds as to the justice of any standard, it would be well to examine into the general forces tending to change the value of a standard. At the outset, it is clear that the purchasing power over other goods of any money standard may be altered (1) by changes affecting commodities in general, or (2) by changes affecting only the money standard itself.

General forces affecting the value of a standard.

The possibilities of changes in the exchange value of goods are large. For the sake of simplicity, let us for a time assume that the forces affecting the money standard are constant. Commodities may then change in value relative to a constant denominator during any period of time which allows such influences as the following to be felt:

1. A revolution in the political and social status of a country, such as the abolition of slavery in the South.

2. Settlement of new countries, such as the opening of the Dacotas, or the Alaskan gold mines.

3. Opening of new markets, such as the granting of trade with Japan and China to foreigners.

4. Changes in taste and fashion, such as the subsidence of demand for certain straw goods or stiff woolen fabrics.

5. Gains in mechanical skill and invention, such as the steam-engine or the spinning-jenny.

6. Reduced cost of ocean and inland transportation, such as the lowered rates from Calcutta to London since 1873.

One of the marked differences between primitive and modern industry is the time element, or the lengthening out of the

[1] Cf. *infra*, chap. xi, § 5.

productive process, so that in the end the unit of commodity may be produced at a lower price. This evolution has gone hand in hand with the march of invention and of mechanical and scientific skill. At no time in the history of the world has this progress been so wonderful and phenomenal as in the last three or four decades of the nineteenth century. The fact that we are living in the midst of it makes us familiar with events which are really surprising, nay, staggering to the imagination. In any one industry, like that of iron and steel for example, hundreds of small improvements and scores of great ones are constantly altering the methods and hence the expenses of production. On every hand, in all industries, we are witnessing an unparalleled progress of invention in labor-saving devices, in new methods of extracting and manipulating the raw materials of the earth. Moreover, there have been opened up to modern markets great areas of new land capable of yielding food and other products. This has been made possible by the marvellous development of ocean and land transportation, which, the world over, has so considerably cheapened the cost of carriage. These gains have been accompanied by the commercial use of the telegraph and telephone, which, giving instant knowledge of quotations in markets all over the globe, have revolutionized the conduct of trade. Together with these improvements have come the minimized function of the middleman, the concentration of industry on a large scale, and a lessened cost of management. Such influences as these have lowered the expenses of producing every article of common use in a degree quite beyond the usual realization.[1]

Changes on the commodity side of the price ratio.

The characteristic of this progress is the possibility of extreme and comparatively rapid changes in the methods of producing any one article, as evidenced in the price of a particular unit of the commodity. For instance, steel rails in no great length of time have fallen by virtue of exceptional inventions from $60 to $30 (and even to $18) a ton; paper has

[1] Cf. Report of Monetary Commission, 1898, p. 94.

fallen rapidly in price by reason of the discovery of chemically prepared wood pulp; and the instances like these are legion.[1] The particular characteristic of such forces is a rapid and extreme movement in the prices of particular articles, quite independent of changes in other goods. Such forces as these operating to change prices on the commodity side of the price ratio must be kept in mind.

Origin of greenback and silver manias.

From not understanding the effects on expenses of production of the great industrial revolution now going on, while still noting the fact of a serious fall of prices, masses of men, under the leadership of agitators, have blindly struggled with the wrong cause. Without realizing that it is one-sided to look for changes in the value of a ratio in only one term of the ratio, they have been easily led to the fallacious position that the changes of price have been due solely to forces affecting the money term of the price ratio. In a time of depression, aware of a great change of prices — since invention and cheapening methods as well as lessened demand also go on more actively in times of depression, — a blind and passionate attack has been made on the supposed scarcity of the standard. This is the natural history of the greenback and silver manias — which have been based on the fallacy that prices were to be fixed by manipulating the quantity of money in circulation. A curious outcome of the phenomenal era of invention and improvement this is.

Changes on the money side of the price ratio.

Passing now to changes affecting the money side of the price ratio, let us suppose that all improvements in producing staple goods are at a standstill and constant; then we may study by themselves the effects of forces operating on money itself to change prices. These influences may work either through the demand for, or through the supply of, the money commodity. The marked

[1] Under former hand-labor methods the amount paid for labor in making one plough was $5.44, and the time spent was 118 hours, or $0.046 an hour; but by modern machine methods the sum paid for labor in making one plough is $0 79, and the time spent 3 hours and 45 minutes, or $0.21 an hour For other remarkable instances see XIII Annual Report of Commissioner of Labor, 1898.

peculiarity of the precious metals is their durability; and for the sake of brevity I may speak, in this illustration, of gold as the standard metal. "After a long-continued period of production the total supply, of gold for example, assumes very large proportions as compared with the annual output. Hence changes in the annual production have a relatively small effect on the total mass in existence. The effect produced is somewhat like that of adding a barrel of water to Lake Michigan; it does not perceptibly raise the level of the lake. From this fact it follows that when the existing supply of gold has become very large, moderate changes in demand for it do not produce any material change in the value of the whole of the large mass in the world. A falling off in the demand would be dissipated over the whole of a large quantity; a considerable increase in the demand (even if not at once balanced by an increased supply) must be distributed over the whole mass already in existence." [1] The world supply must be kept in mind, since the proper value of an exportable article like gold is always, except for slight temporary fluctuations, its world value. Consequently, owing to the durability of a precious metal chosen as a standard, ordinary changes in demand and supply cannot produce any extreme or rapid changes in its world value. It is not to be understood from the above that the value of a precious metal like gold may not be influenced by changes in its demand and supply, but only that these changes cannot, under present conditions, be sudden or extreme.

In studying the causes affecting changes in the value of the standard, then, it must be clear that rapid and extreme fluctuations must be assigned to forces working on commodities, and that only slow and gradual fluctuations can be expected from forces working on any standard whose supply is so great as to give it stability. For instance, the existing supply of wheat is, roughly speaking, the annual supply; and the change in the demand for, or supply of, wheat can produce rapid and extreme fluctuations in its price. While, on

[1] Report of Monetary Commission, 1898, p. 95.

the other hand, an annual production of nearly $300,000,000 seems to have had little recent effect on the total supply of gold, and on its world value, so far as it has been manifested in any tendency toward rising prices.

§ 3. We have now arrived at the underlying reason why the commercial nations of modern times have in fact gradually selected the precious metals as the most desirable commodities for a standard. And since the enormous production of gold during the last half of the nineteenth century (being about $6,500,000,000 in 1850–1900), the total mass of gold has by its quality of durability assumed such a condition of stability that its world value is less likely to be shaken by ordinary changes in its own demand and supply than that of any other known commodity.[1] This accounts for the fact of the tendency toward the adoption of a gold standard in recent years. It is the explicable preference of the business world, based on correct economic analysis, which has been crystallized in a long series of legislative acts since 1853. This is why it may be said that standards are not created by governments, but that governments necessarily adopt the standards created by their citizens. If by any chance they run counter to those preferences, disaster to prices and industry generally results. To be sure, gold may not be a perfect standard, but the mere fact that it has been chosen by the most enlightened commercial nations — by a demand from within, not by imposition from without — is strong proof that it is the fittest single commodity for practical use

Why gold has been generally chosen as a standard.

[1] The very reasons which cause us to-day to prefer gold, led Ricardo nearly a century ago to prefer silver:

"Silver, too, is much more steady in its value, in consequence of its demand and supply being more regular; and as all foreign countries regulate the value of their money by the value of silver, there can be no doubt that, on the whole, silver is preferable to gold as a standard, and should be permanently adopted for that purpose." Works, p. 403.

But the extraordinary and rapid fluctuations in the value of silver, even in comparison with commodities in general, in the six months of 1876, and in the period immediately after 1890, has put it out of the contest with gold on the ground of stability of value. But this question will be fully treated in Volume II.

as a standard. While possessing all the other qualities of a desirable money-material (portability, indestructibility, homogeneity, divisibility, and cognizability), it possesses for natural reasons, more than any other article, the one requirement of stability of value, so far as causes affecting itself are concerned; and that requisite is the most essential thing in the function of deferred payments.

§ 4. No commodity, however, not even gold, has perfect stability of value. Since extreme and rapid changes may be produced in the exchange value of the standard (even of gold) by forces acting solely on commodities (and perhaps not touching gold itself, except indirectly), it is impossible to maintain unchanged ratios between the standard and goods. The standard question, therefore, is not one relating merely to the choice between gold and silver;[1] it is a larger question than that; it is the problem granting the inevitable changes in prices, as to how justice may best be subserved between debtors and creditors in time contracts. But, at least, it is not reasonable to charge the inevitable changes in the value of a standard arising from commodities to influences working only on the standard commodity. This has been the wide-spread cause of monetary delusions; and it is well to emphasize the error. But whatever we may think of this error, we must all admit that no one commodity can possibly be a perfect standard of deferred payments; and the standard question becomes an inquiry into the means by which the closest approximation to perfection may be reached.

The standard question.

Seeing the difficulties in exacting justice in long contracts, it has been suggested that the voluntary action of mankind may be trusted to furnish a practical solution of the problem without the interference of the state. But in a régime of complicated property relations, in which

Legal need of a standard.

[1] For, even if bimetallism were practicable, there would be changes in the expenses of production of wheat, steel, etc. as compared with the dual standard. At the most, bimetallism would work to keep gold and silver from changing relatively to each other; but it would not keep goods in general from changing relatively to gold and silver thus united in bimetallism.

contracts are being constantly interpreted and enforced by the courts, the legal reasons for the clear definition of what the standard is, its content and weight, are overwhelming. There must be some means of defining what is a legal acquittal of a debt, and of enforcing the decree of the courts.[1] An accurate and authoritative interpretation of monetary terms is a part of this system. The necessity of a standard, however, should not be confused with the reasons determining the choice of the standard material.

Duty of the state to the standard.

The duties of a state to the parties to a contract may, however, be easily exaggerated. This may happen when the claim is made that debtors, or creditors, should be protected by the government from any unforeseen changes in price which may have altered the value of money during the existence of a contract. The business world buys and sells, perfectly aware of the impossibility of finding a perfect standard; when entering into a long contract, every man knows that he takes a risk, be it small or great, of alterations in the value of money relative to goods. It is no defence to plead that he could not have known enough about money to understand this as a part of his problem. It is characteristic of our world that a premium exists on men who do know these things and act accordingly. The possibility of industrial changes which would affect prices and of influences which would touch the money metal and change the value of a standard is as much a part of the necessary risk in making contracts as the knowledge of the soundness of a buyer's credit. It is one of the risks which a man must assume in taking up any industrial enterprise. If such be the case, it would be carrying the plea for government interference to a foolish extreme to require the state to compensate any and every business man for all mistakes of judgment which may have involved him in risk and loss. Every one who enters into a time obligation assumes certain risks which he must face, and of which he must accept the consequences. To throw the ordinary risks of business upon the state is a per-

[1] Cf. *infra*, chap. xiv, § 1.

version of socialism which one need not discuss further. But such a policy as this is clearly involved in the frequent proposals that the government should so control the currency, increase or decrease its quantity (generally increase it, of course), that prices might be regulated artificially, and contracts thereby be affected through action upon the value of the standard.

Likewise in regard to national and municipal indebtedness, it should be understood, as one of the deterrents against piling up a huge mass of long bonds, that events, outside of state control, may operate so that the burden of debt may become much heavier as decades go by. The result may be the very opposite, and prices may rise; but that contingency is not to be safely counted upon. The risk in long contracts should be faced by the state, just as it must be faced by good business men in private enterprises. Therefore, after a heavy weight of public debt has been incurred, it is whining sentimentalism to bemoan the possibility of an increase of the burden due to falling prices, even if it be granted that this increases the burden. Since this may be a natural result of improvements, why was this risk not foreseen? If an understanding of the imperfectability of a standard of deferred payments should eventually lead to a discouragement of the tendency to an improvident increase of public debts, and to an encouragement of a tendency to cover all expenses out of current receipts, it would be an undisguised blessing.

National debt.

§ 5. The moral and economic considerations entering into the relations of debtors and creditors are not always kept in mind. In legislation on money, it is sometimes assumed that the debtor class should be favored as far as possible. But who compose the debtor class? It is true, for instance, that a bank is a debtor to the full extent of all its assets. Large capitalists frequently have outstanding obligations to meet far in excess of their actual capital. Merchants are constantly doing business to an amount far beyond their own capital. They borrow additional means by discounting their paper, and create the

Who compose the debtor class?

greater proportion of general indebtedness. The largest part of the obligations of a country, so far as amounts are concerned, necessarily arises from those who engage in the more extensive transactions. But the political outcry in favor of the debtor, heard in many places, has no origin in an altruistic desire to help the large operators; and yet they form the most important part of the debtor class. The attitude above referred to, doubtless, had its inception in the mistake that the poorer members of the community were the main constituents of the debtor class. A poor man may be in debt, but the total burden of the poorer class is but a fraction of the obligations of a few large institutions, and legislation giving preference to debtors will serve the poor man infinitely less than it does the large producer.[1]

Moral and economic relations of debtor and creditor.

But is the legislation favoring debtors as against creditors for the good of the country, morally or economically? Suppose that a salaried clerk has saved something from his meagre stipend to provide for old age or possible death; and in the course of five years that he has accumulated $1000, which he wishes to invest safely. He lends the sum to a farmer in Kansas, secured by a mortgage on his farm. The frugal clerk sees his savings of five years pass out of sight; to the farmer is given the power to consume for his own use all that the $1000 will purchase. After the farmer has obtained the satisfaction which this sum commands, is he thereby exempt, merely because it is spent, from the moral and legal obligation to return $1000 with interest to the clerk, who went through painful sacrifices to save the amount, and who has as yet never enjoyed anything from the results of his saving? The farmer took, and he must meet, the risks of borrowing, of production, of crops, of markets, of time contracts. Now suppose the crops fail, or that through foolish errors of judg-

[1] The mortgage bonds of railways alone in the United States are $4,200,000,000 while all the mortgages on "acres" is $2,200,000,000. And the mortgages on "acres" in many cases result from operations of well-to-do men. Cf. Census 1890, Real Estate Mortg, p. 87, and Transportation, p. 14.

ment the farmer is unable to repay the loan on maturity. Does that satisfy his obligations to the lender? By no means. If mistakes have been made, if the farming has been injudicious, or if the loan was fraudently consumed, so that there is nothing to show for it, then it is clear that the $1000, by the process of lending, has passed from the thrifty, honest, and fore-sighted to the less efficient or less honest member of society. Should the latter be favored at the expense of the former? Clearly not. On the other hand, suppose that the farmer had made a good investment of the loan, had shown skill in the use of the new capital on his farm; then the borrower will have earned more than he borrowed, and he will have the means to repay the loan. In such a case no question is ever raised as to the right of repayment; the discussions are raised, as a rule, solely by the debtors who have displayed inefficiency or dishonesty.[1] Economically speaking, the creditors as a rule are those who have saved, the thrifty, steady, temperate, and industrious members of society, who set a future gain above a present indulgence. This class is worth more to the community than the shiftless, easy-going, improvident incapables who are ever looking for outside help to make up for inside weakness of character. So far as creditors can be separated from debtors as a class, there is no ground for the assumption that debtors should be favored as against the creditors. Both should receive impartial, even-handed treatment, regardless of class.

It is an economic common-place, that a change in the value of the standard is of importance mainly to those who have entered into time contracts. After a given level is

[1] An objector might say that the above conclusion is right, but that it does not cover the case where, by a fall of prices, the debtor is obliged to pay back more than the value of the $1000 at the time he borrowed (and this, too, from causes beyond his control). I reply that this is one of the risks of a time loan, and the debtor must keep that in mind when he borrows, and when he fixes the rate of interest. Prices might have risen; in that case he would probably make no offer to pay back what the creditor would lose by receiving only $1000. Moreover, in the United States, the average term of farm loans is only 4½ years (see Census 1890, Real Estate Mortg., p. 107), and the changes in the standard, if it were gold, would be inconsiderable in that period.

reached, whether one of high or low prices, payments may go on without touching seriously the relations of debtors and creditors. The process of transition from one standard to another of greater or less value is the whole cause of difficulty. Hence no government should willingly initiate a policy which may lead to a change in the value of the standard, unless it advisedly proposes to pass class legislation. To go from a metallic to a depreciated paper standard would raise the level of prices, and permit the debtor to cheat the creditor of a part of his investment; or, to go from one metallic standard to another one-half as valuable would be a blow at all the existing money contracts of the business community, and would create indescribable disorder and uncertainty. A measure which temporarily aims by class legislation to benefit the poor, may suggest a policy by which the rich — who can bring most pressure to bear on legislatures — may obtain special legislation for their own advantage. This is a two-edged sword; it is best never to resort to it.

Class legislation.

§ 6. The standard question has come to the fore in consequence of the industrial revolution already described, which by improvements has surprisingly cheapened the expenses of producing each unit of goods. Progress in the arts and falling prices here have gone together. To be sure, a full vision should take into account the possibility of a period of rising prices (such as that from 1850 to 1865), but the present generation appears to be disturbed mainly by the problem of justice in time contracts only when prices are falling. It is not possible here fully to discuss the causes of the fall of prices; the fact of the decline is assumed. In this régime, however, of invention and improvements, the change in the value of the standard is traceable to the commodity side of the price ratio, and not to the side of money. In such a case, what is the problem? In 1880 A lent to B $1000, which in that year bought x commodities, and B agreed to repay $1000 in gold in 1900. If processes of production have made great advances, then, in

Time contracts in periods of improvement.

1900, $1000 will buy $x + n$ commodities. Should B repay in 1900 only that sum of money which would buy the same quantity and quality of goods which he could have obtained with the $1000 in 1880? Would that be more just than repaying $1000 in gold, which in 1900 buys $x + n$ goods? Has A any right to the n goods in addition to the x goods? For that matter, has B any ground for claiming the n goods? Where is the justice? If only x goods are returned to the creditor, he loses the gain from progress in the arts, while that gain goes to the debtor. On the principle that the return of the same quantity and quality of goods at the end, which was obtained at the beginning, of a contract is the true rule of justice between debtors and creditors, the multiple standard has been proposed.

The tabular or multiple standard.

The prices of a long list of staple articles, whose quotations have been collected by a government commission, and averaged daily, weekly, monthly, and yearly, when added up, give a sum of money which will buy the same quantity of the same goods at different periods of time. The multiple unit is the same quantity of the same goods at any time. It can be translated into money, or money into the multiple standard, by the given table of prices. If in 1880 $100 bought the articles of the list, and if in 1900, owing to the gains of the arts, the list could be purchased for $90, a contract drawn in terms of the multiple standard could be discharged by the sum of money ($90) which in 1900 bought the same goods which $100 bought in 1880. Thus, the experiment does not involve the abolition of the money standard, but may go on alongside of it. It is assumed that the government will authorize the enforcement of contracts drawn in terms of the multiple standard, but that its use will be wholly voluntary. The machinery could easily be set up by any government without awaiting the action of another state. And if two parties to a contract believed that such a standard would subserve strict justice, it would be open to them to adopt it. It would be well understood, moreover, that in case of a progress in the arts the

gains of society under a multiple standard are lost by the creditor, and won by the debtor.

An attempt has been made by the Committee of the Economic Section of the British Association in 1888 to introduce a system of weighting,[1] according to their relative importance in the annual expenditure, into a list of goods large enough to be recommended as a tabular, or multiple, standard of payments for Great Britain, as follows:

Articles.	Estimated Expenditure per Annum on each. 000,000s omitted.	Hence Weights Assigned.		Prices to be taken from.
Wheat	£ 60	5	20	Gazette average, English wheat
Barley	30	5		" " English barley
Oats	50	5		" " English oats
Potatoes, rice, etc.	50	5		Av. import price English potatoes
Meat	100	10	20	Market quotations, live meat, Smithfield
Fish	20	2½		Board of Trade Returns; average per cwt. landed
Cheese, butter, milk	60	7½		Cheese and butter, average import price
Sugar	30	2½	20	Av. import price, refined sugar
Tea	20	2½		" " " tea
Beer	100	9		Av. export price, beer
Spirits	40	2½		Av. import price, spirits
Wine	10	1		" " " wine
Tobacco	10	2½	10	Av. import price, tobacco
Cotton	20	2½		" " " cotton
Wool	30	2½		" " " wool
Silk	20	2½		" " " raw silk
Leather	10	2½		" " " hides
Coal	100	10	20	Av. export price coal
Iron	50	5		Market price, Scotch pig-iron
Copper	25	2½		Av. import price, copper ore
Lead, zinc, tin	25	2½		" " " lead ore
Timber	30	3	10	Average import price
Petroleum	5	1		" " "
Indigo	5	1		" " "
Flax and linseed	10	3		" " "
Palm oil	5	1		" " "
Caoutchouc	5	1		" " "

[1] Cf. Bowley, The Elements of Statistics, p. 225.

It has been urged also that, in propriety, the price list of the multiple standard should include rates of wages and rents in such a way that their relative importance to other expenditures should be expressed. In the very periods when the arts are progressing, the efficiency of labor is being increased, and wages are higher. Hence the purchasing power of the standard over services and goods will not be correctly stated if compared only with units of goods. It is desirable also to have a means of comparing the standard with the efforts and rewards of human labor.

Wages in a tabular standard.

In favor of the tabular standard, it is to be noted that it does not introduce in any way a new medium of exchange. Its use would emphasize clearly the fact that exchanging can be done by a means quite separate from that of the standard; and it should reveal the fallacy of supposing that the difficulties of falling prices are necessarily bound up in computations as to the abundance or scarcity of a medium of exchange. Falling prices are an expression of a readjustment in the exchange ratios between the standard commodity and goods, but the fall is not in itself a proof that the medium of exchange has become scarce, any more than a rise of prices would be a proof of its abundance.

Tabular standard introduces no new medium of exchange.

As to its practical working, General Walker[1] gives the following illustration: "For example, suppose I sell a house today, the value of which, as agreed upon between myself and the purchaser, is $20,000, one-half to be paid down at the time, two-tenths to be paid in two years, three-tenths in five years, with interest on the last two sums. One-half of the purchase money, being payable at once, is paid in money, $10,000 in gold or bank notes. For the rest, the purchaser and I look to the last published statement of the government commissioner, and find the value of a unit of the tabular standard to be $12.50; that is, $12.50 will now purchase the bill of goods which form the standard. The purchaser then gives me two notes, one for 320 units of the tabular standard, payable in two years, and one for 480 units,

Its practical working.

[1] Political Economy (advanced course), p. 371.

payable in five years, with interest at six per cent, per annum, meanwhile. At the end of the first year, the two parties interested look in the official gazette, and find the value of the unit at the time to be $12.75. There is then to be paid one year's interest on each note, amounting, in the case of the first note, to 19.2 units, which obligation is discharged by the payment of $244.80 in current money; and, in the case of the second note, to 28.8 units, which obligation is discharged by the payment of $367.20.

"At the end of the second year the value of a unit of the tabular standard might be ascertained to be $13 or $12.25; in the latter case the interest on the first note is discharged by the payment of $235.20, and that on the second note by the payment of $352.80. If, however, the value of a unit has been ascertained to be $13, the interest on the first note will be $249.60, and that on the second note $374.40.

"But the principal of the first note, 320 units, is now to be paid. A similar computation shows that, if the value of the tabular standard is $12.25, the maker of the note must pay $3920 to discharge his obligation; if the value of the unit be $13, he must pay $4160."

Walker's objection.

Such being the simplicity of the plan, the objection has been made[1] that, in practice, it could not be used by merchants, buying and selling, giving notes and taking them every day, because, with the tabular standard it would be impossible for the merchant to strike an exact balance between assets and liabilities. I am not able to see the force of this objection against the multiple standard itself. Suppose the business account stands as follows:

Assets.	Liabilities.
300 units M.S. due June 1 200 " " " Oct. 1	500 units M.S. payable Dec. 1

If on any one date the merchant wished to know where he stood he could ascertain it at once in terms of tabular units. If on June 1st the units were equal to $15, on October 1st

[1] F. A. Walker, Pol. Econ., p. 374.

to $20, and on December 1st to $18, it is evident that, while the money equivalents would not be the same at any one date, there would be, under a comparison of multiple units, no change in the relations between buyer and seller, and consequently a return in every case of the same purchasing power expressed in goods. The supposed objection brings into a clear light the essential nature of the multiple standard.

The real difficulty with the proposed tabular unit, however, resides in the fact that it cannot, by its very nature, be tried as the sole and only standard, — supplanting entirely a metallic standard, — but that it must be regarded as a device to be used only in conjunction with a metallic system. If one were to argue in favor of a multiple standard as the sole standard, the reasoning would presuppose a general condition of barter; since a unit (stated without the prices of the constituent goods) would represent only a certain quantity and quality of goods. Such a basis for discussion of a modern problem is impracticable, and may be summarily dismissed. Therefore all treatment of the multiple standard necessarily includes a list of goods having price quotations in a monetary standard. The tabular unit, therefore, at its best, can never be more than an expedient to aid in making up for the inevitable shortcomings of any single commodity which may be used as a standard of deferred payments.

Tabular standard involves use of money prices.

Keeping this in mind, it is easy to understand that merchants would be unable to balance their accounts, if bills payable and receivable were expressed in both multiple and monetary units. That is, the real difficulty arises only when two different standards are used in the same accounts. If a merchant were to owe multiple units and also to receive money units, then his accounts could not in the nature of things balance. For these reasons business men would decline to use the multiple standard together with a monetary standard on the same grounds on which they would object to the confusion arising from using any two standards.

Whether merchants would use it in their daily accounts or not, however, does not settle the validity of the multiple standard. If it is rejected, it must be on other grounds. In my judgment, the reason why it would probably never be adopted in the mass of every-day transactions running no longer than three or four months is that the term is not long enough to introduce serious time risks, and, therefore, that the resort to the multiple standard to escape these risks is not necessary. The money unit in short-time operations is generally free from the difficulties which have led to the proposal of a multiple standard.

Real objection against daily use of tabular standard.

A point in favor of the new standard has been made by Mr. Jevons[1] that its adoption would introduce stability into social relations, and render commercial crises less intense. "Periodical collapses of credit would no doubt recur from time to time, but the intensity of the crises would be mitigated, because as prices fell the liabilities of debtors would decrease approximately in the same ratio." If, however, over-trading and commercial crises[2] result from creating promises to pay beyond the property really possessed and available, it is difficult to see why over-trading might not, by the usual influences of sanguine human nature, create as dangerous conditions with one kind of standard as with another.

Under a money standard, debts remain fixed in given monetary units; while, as prices fall, goods sell for less relatively to debts. That is, in such a case debts do not shrink with falling prices. Under a multiple standard, as prices fall, the unit of indebtedness as expressed in money falls with them. Mr. Jevons's idea, doubtless, is based upon the fact that, if prices fall, the debtor would always gain by the multiple standard. This standard is one which favors debtors, but at the expense of the creditors. It is not to be accepted that a system which in panics would work damage to creditors, just to the

Tabular standard would not mitigate crises.

[1] *Op. cit.*, p. 333.

[2] See *infra*, chap iv, §§ 6, 7.

extent that it would save the debtors, would mitigate the severity of crises. If the careful and efficient members of society are injured, it may be true that the recovery may come again sooner than if the weaker members of society were hurt; but society is hit hard in its vital parts just the same, and the injustice ought not to be overlooked.

Cases where tabular standard is just and unjust.

In the collapse attending a commercial crisis, on the other hand, prices may fall, not from causes due to the progress of the arts, but from goods being thrown on the market in supply beyond the demand; and this may go on to such an extent that the depression of prices may be continued long enough to have an effect on time contracts. Suppose, in 1870, A's current liabilities amounted to $20,000, and that the multiple unit which was $25 in 1870, fell to $20 in 1875, after the panic of 1873. The fall of prices we will suppose to have been due solely to the readjustment of demand and supply, and not to changes in expenses of production. If A's obligations had been expressed in multiple units, he would have owed 800 of them in 1870; and in 1875 he could have discharged his obligations by 800 units, or by $16,000 in money. So far this looks merely at his liabilities. In case A had no assets, and must now grow wheat or produce coal to pay off his debts (the expenses of production remaining unchanged), the multiple standard would afford real and just relief to the debtor, because a change in the efficiency of production has been left out of the question. But another situation might produce very different results: If A had on hand considerable quantities of goods in storehouses, his means of paying, under a contract expressed in terms of a multiple standard, would shrink *pari passu* with the shrinkage of his debts. As prices fell he would still have to pay the same quantity and quality of goods as when prices were high. Hence a debtor would not be relieved of a part of his burden in such a case. That would happen only if his debts were expressed in fixed units of money, which might be discharged by the original amount of goods purchasable at the beginning of

the contract, but obtainable at the maturity of the contract by a less sum of money.

However, obligations running for short periods are not the ones for which merchants are ever likely to use the multiple standard; but the mass of obligations which merchants will, in fact, be carrying when a crisis comes are likely to be short-time obligations. Hence, in practice, the multiple standard will in all probability never be applied to most short-time obligations; and consequently the favorable results anticipated by Mr. Jevons from the use of a tabular standard in the time of a crisis could not possibly take place. Its usefulness, whatever it may be, must be found only in long-time obligations.

In such long contracts the usual problem is to secure justice when prices fall because of changes in the arts and in the productive efficiency of society. The practical question is to whom do the n goods belong.[1] If the capital of $1000 which A owned in 1880, purchased x goods, and gave forth a certain industrial result in the then state of the arts; and if that capital while in the hands of B, the borrower, due solely to the general progress of the arts for which neither A nor B is directly the cause, gave forth in 1900 a greater industrial result (such as more tons of coal or more yards of cotton cloth), does that additional product — n goods — belong of right to A or to B? Should the result of the efficiency of society go to the creditor or to the debtor? The question is similar to that of deciding to whom should go the increased value of land arising from the growing numbers of the community, — to the land-owner or to the tenant. The triumphs of chemistry and physics, the marvels of invention and machinery, become the general property of the industrial world, and any one debtor or any one creditor can claim no general property in these results. Therefore neither A nor B has any moral right to the additional n goods which have issued from the

To whom should gains from progress go?

[1] See p. 47.

greater efficiency of labor and capital under the improved conditions in 1900.[1]

The multiple standard, however, by its very nature assumes that perfect justice is rendered through the return by the debtor to the creditor of only the x goods; that is, the multiple standard works to give the n goods (due to the progress of the arts) to the debtor, and to take them away from the creditor. And yet it has been seen that the debtor has no moral right to this excess of goods. The conclusion, if the above reasoning be accepted, is inevitable, — that the multiple standard in a case of falling prices due to the progress of society does not subserve perfect justice; if it is to be rejected, it must be on this ground, and not on that of impracticability.[2]

When the tabular standard favors debtor.

On the other hand, the existing gold standard distinctly throws the n goods into the hands of the creditor. If the debtor is forced to pay back the same sum of gold in 1900 which was borrowed in 1880, the fall of prices in those twenty years allows the $1000 to buy not only the x goods, but the $x + n$ goods. And yet, as we saw above, the creditor has no moral right *per se* to this excess of

When the gold standard favors creditor.

[1] I cannot accept General Walker's conclusion (Principles of Political Economy, p 373, § 462) on the multiple standard: "In short, it is a means of giving and taking credit without receiving an unearned advantage or suffering an undeserved injury through fluctuations in the value of money" On the contrary, it specifically gives the increased increment to one party to the contract who had not earned it.

[2] "One of the gravest and most obvious practical defects of the consumption standard is its inadequacy as a standard of deferred payments. If in T′ A borrows $100 from B when both are making $1 a day, and prices are at a point represented by 100, how much should A repay in T″ when both are making $2 a day and prices are at a point represented by 95? A is as able to repay $200 as B was to loan $100, and yet according to the consumption standard B should return only $95. Imagine the reverse case, in which prices rise and wages fall, and it will be still more apparent that the consumption standard is wholly one-sided; fairly equitable from the standpoint of the consumer, or creditor, but completely unsuited to voice or express the relative ability of the debtor or producer to repay." T. S Adams, Jour. Pol. Econ., Dec. 1901, p. 11. This analysis draws the line between debtor and creditor as if it also separated the consumer from the producer with equal exactness.

goods — at least not on the basis of our present reasoning. Therefore, the gold standard does not, in a case of falling prices due to improvements, subserve perfect justice between debtor and creditor, and, if it is to be justified, it must be for some other reason.

Claim of the creditor.

The ground for claiming the right of the creditor to the n goods (as given by the gold standard) has been based on the right of the lender to retain his relative position in society.[1] If in 1880 $1000 gave him, in the then condition of the arts, a certain position relatively to other men in general and to other productive forces, he should be granted in 1900 the additional gains which would replace him in the same relation to other capital, and return him the same advantages which he would have retained if he had kept his $1000 in his own employ, producing and reproducing from 1880 to 1900. As a lender, A might say: "I loan this sum to B on condition that he should not deprive me of the gains of society which I might reap, if I used the $1000 myself and did not lend it at all." This gain, of course, is different from, and in excess of, normal, or pure interest on capital.

If any government should establish the machinery of a multiple standard, enforce contracts drawn in its terms, and allow

[1] Professor Ross supports this view as follows: "Ten years ago I lent you the proceeds of a coach and four, which procured for me at that time a certain social distinction. Now you return me a coach and four, but the objective utility is not the same, and I am the loser. Owing to the general industrial progress and the consequent abundance of coaches and fours, I must now have a coach and six to enjoy the same distinction. . . . It would, therefore, seem but just that the creditor should participate in the benefits arising from general industrial progress sufficiently to compensate him for the depreciation of that portion of his wealth devoted to satisfying the needs of his social nature." Annals Amer. Acad, 1892, III, pp. [304–305]. It is difficult to see why this process should be confined to that part of his wealth described as of a social nature. Would not the reinvestment of any sum returned by the debtor, and the income from it, touch the creditor's social position? If so, the creditor, should he choose to go into manufacturing, would be quite as sensitive to his relative standing as compared with that of other manufacturers, as he would be as to his equipages. If the debtor did not replace him in the former relative position of wealth in general, as compared with his business rivals, the creditor, on the same grounds as those given by Professor Ross, would have a right to complain of injustice.

a voluntary choice between gold and the multiple standard, the parties to a contract would then be able to settle the question of justice in a practical way, through agreement on the rate of interest. If the gold standard were used — since the n goods would go to the creditor under such a standard — then certainly no more than the ordinary rate of pure interest could be charged; that is, the rate would be low. If the multiple standard were used — since the n goods would go to the debtor under such a standard — then any demand on the part of the creditor for a share of this gain would probably result in raising the rate of interest. In this way one standard would go with a low rate, the other with a high rate, of interest, and the choice between the two would be immaterial.[1]

Practical justice obtained through rate of interest.

An application of this general principle might be made to the use of silver, or of any other standard desired by a portion of the public. If it were found that silver had a value so different from that of gold (with different sources of supply and different forms of demand) that its value could not be maintained, even by bimetallism, at a fixed relation to gold, it would still be possible to use it as a standard. By manufacturing silver coins, which merely certified their weight and fineness, and by enforcing at law contracts drawn in terms of silver coins, just as in units of a multiple standard, any persons could voluntarily use silver in long contracts, if both parties believed that metal to be the best standard of deferred payments. It would not be necessary or just to make it a legal tender for contracts drawn in terms of any other standard; nor need any relation between gold and silver be fixed upon.[2] A distinct name

Silver as a standard alongside of other standards.

[1] For a further detailed study of the relation between interest and the value of the principal in investments, see a very admirable paper, in the mathematical method, by Irving Fisher, entitled "Appreciation and Interest," Amer. Econ. Assoc., XI, no. 4, pp. 331–442, Aug. 1896.

[2] This idea is as old as John Locke, who, seeing silver in general use, said of gold: "It is not necessary that it should have a fixed value set on it, by publick authority; it is not convenient that it should, in its varying proportion, have a settled price. Let gold, as other commodities, find its own rate." Considerations, 1691, p. 289, in McCulloch's Political Economy (London, 1870).

should be given to a unit of silver which could be used in transactions, and which should be unmistakably different from that given to the unit of any other standard.

Gold as a standard alongside other standards.

In a similar way, a definite name being given to a certain weight and fineness of gold, and contracts drawn in its terms being enforceable by the courts, there would be no need (except on judicial grounds) of legal-tender laws for gold. It is only when, under a given name (*e. g.*, a dollar), different things are assigned the same legal value, or given a certain relation, that trouble arises; in such cases legal-tender laws are necessary to prevent doubt as to what the dollar means. Hence in such an experiment gold should stand by itself, silver by itself, and there should be free choice, based only upon commercial expediency. Any members of society should have the privilege of completing their transactions in the way most serviceable to themselves. If, then, the commercial world by universal habit should choose to use gold, there could be no objection; every citizen should be as free to use gold, if he prefers it, as to use silver. Likewise a silver standard should no more be enforced on those who prefer gold, than gold should be forced on those who prefer silver. But in the end, without doubt, silver would cease to be used, if its choice were made voluntary.[1] The duty of the state is to give each citizen the largest individual liberty consistent with the protection of the rights of others.

A corn standard.

§ 7. In view of the possible changes in the value of a metallic standard, wheat (or "corn") has been often suggested in the past as an article, which in the course of good and bad seasons has preserved a remarkable uniformity in its relation to the value of goods in

[1] Should both gold and silver be established as standards, in the manner suggested above, daily prices would come to be quoted sooner or later in the one standard generally preferred by the community; because quotations in two standards would be highly inconvenient. In this way, by voluntary action, the gold standard would probably be gradually adopted, and we should in the end have practically the same system as that now in use.

general. This solution was offered because of the fear of changes originating on the side of the money commodity, such as the possibility of a great fall in the value of gold due to the discoveries in Australia and California about 1850. In the period from 1850 to 1860 the durability of gold had not yet created the stability due to an immense existing supply which now obtains; so that the gold standard had not as many elements in its favor then as now.

Mr. Cairnes [1] urged the disadvantages of a depreciating gold standard as follows:

> "Means may be found in the framing of settlements and leases, and in the selection of investments, to mitigate its severity; the grand rule being to avoid as much as possible purely monetary securities, such as the funds, mortgages, preference shares, and, in general, investments the returns on which do not rise with the advance in prices and salaries. The foresight of Lord Burleigh, warned by the changes which he saw around him, effected in the sixteenth century the partial substitution of corn for money rents, and in this way the incomes of colleges and other institutions have been preserved, which but for this precaution would have long since dwindled into insignificance."

The phenomenal fall in the price of wheat, due to the competition of the fertile American grain fields with English wheat lands — coupled with the extraordinary reduction in rates of ocean and land transportation — has recently wrought havoc with the income of English colleges. Such an experience has proved how inadequate this standard is. Indeed, a standard composed of a single article, having no stability of value due to durability, is at the mercy of any great agricultural or industrial revolution.

A practical example of wheat as a standard appears in the case cited by Mr. Giffen,[2] in connection with the study of index numbers. From the Corn Returns an index number

[1] Essays in Political Economy, pp. 158–159. See also Jevons, *op. cit.*, p. 326.

[2] Economic Journal, 1892, p. 467.

was obtained from which the tithe average in England, and the corresponding *fiars* prices[1] in Scotland, were fixed:

> "Here the prices are derived from returns of actual transactions on an extensive scale, and, for fixing the tithe average in England, the prices are the average of the sales of a year over the whole country. To get rid of all inequalities this immense labor is undergone. Finally, while the price for each year is fixed in this way, a farther attempt to get rid of inequality is made by arranging for the payment of the tithe on a septennial average — the average in each year of the prices of the seven years previous."

Evidently the stability of this standard is open to all the objections made above.

§ 8. Another attempt to solve the standard question is to be found in the proposal to adopt as the unit of deferred payments the day's work of an average unskilled workman. By this plan it is hoped to obtain a measure of value which will keep pace with the sacrifice of human effort, and which cannot greatly vary from time to time in regard to goods in general. Of course, this scheme originated in the Marxian idea that goods depend for their value upon the labor cost.

The labor standard.

As a matter of economic theory there are many and valid objections to believing that the value of a commodity is regulated solely by the quantity of labor expended upon it. This theory pays no regard to the fact that the supply of any article is also attributable to capital as well as to labor. Nor is this all: exchange value is not due solely to considerations affecting supply. The capacity of a thing to render satisfaction to human beings is an element affecting value. Clearly enough, labor is but one of several elements combining to

[1] In February or March in Scotland, the sheriff with a jury, after having expert testimony, fixes the prices of grain for the current year, which rule in all grain contracts where no price has been specified, and in calculating the money value of rents, etc., payable in grain The procedure is called *striking the fiars* The word is a form of *feuar*, or *fee*, in Scottish law.

give value to a commodity. In fact, the labor standard falls with the failure of the labor theory of value.

But even if this theory of value[1] were admitted to be sound, there are insuperable objections to the use of labor as a standard. The essential failing is to be found in its indefiniteness and uncertainty. It would be fatal to a measure of length if the unit varied in length. In the case of human effort, it needs no expert to see that the labor and sacrifices of workingmen are so variable as to remove all possibility of reference to it as a fit standard. The sacrifices of the same laborer engaged on the same work are not constant: in the morning hours the task may be easy; in the last hours of the afternoon his fatigue may entail heavy sacrifice; one day he may be half sick, another day he may be in the vigor of health. In truth, the labor of men on certain goods is not comparable with that of the same men when producing the same goods at different periods of time, — to say nothing of the fact that the state of the arts in that industry may differ in separate periods of time and may wholly change the character of labor operations.

Moreover, the exactions made of unskilled workmen cannot be compared with those made of highly skilled workmen; and yet both are often used in making a given article. A unit of the former kind is not in the same category as one of the latter kind of labor. Physically speaking, doubtless the subjective effort of the diamond cutter is infinitely less than that of the coal miner: in fact, they are not comparable things. If it be proposed to use labor as a standard, which kind shall be taken as the unit? Since the problem is to serve out justice between a debtor and creditor, would the labor of the debtor or of the creditor[2] best render impartial justice?

[1] Professor Alfred Marshall seems to regard labor as a possible measure of the value of gold: "I would like to say that when it [appreciation of gold] is so contrasted, and used as denoting a rise in the real value of gold, I then regard it as measured by the increase [wrongly printed, "diminution"] in the power which gold has of purchasing labour of all kinds — that is, not only manual labour, but the labour of business men and all others engaged in industry of any kind." Q. 9625, Appendix to Final Report of the Royal Commission, etc. (1888).

[2] Cf. Fetter, Annals, 1895, V, p. [886].

The difficulties involved in the labor standard, in short, are evidently so many and so damaging as to make it profitless to discuss it seriously.[1]

Since the attempt to use subjective effort is impossible, the proposal to employ the quantitative payment for the subjective labor, in the form of wages, is equally unsatisfactory, because wages cannot be claimed to be an accurate measure of the laborer's subjective sacrifice. A tabulation, moreover, would be inaccurate, since one cannot average units of different kinds.[2]

§ 9. The question of justice to debtors and creditors has led to an interesting recent discussion by American economists.[3]

Final disutility of labor as a standard.

A labor standard based on the marginal disutility of labor, has been proposed by Professor J. B. Clark, who holds that an ideal standard may be secured which "will divide equally between debtor and creditor the gains that come through industrial progress."[4] This is founded, of course, on his theory of value and wages.[5]

[1] Cf. Nicholson, Monetary Problems, pp. 333–336. He calls attention also to the attempts to put the labor standard into practical use, as follows: "In some Socialistic schemes it has been proposed to issue labour-tickets against commodities or services, and everything being expressed in terms of so much labor, exchanges might be made on this basis" (p. 20).

[2] For a fuller discussion as to weighting such a standard, see T. S. Adams, Index Numbers and the Standard of Value. Jour. Polit. Econ., Dec. 1901, p. 16.

[3] J. B. Clark, The Ultimate Standard of Value, Yale Review, Nov. 1892, I, 258–274. — *Ibid.*, The Gold Standard of Currency in the Light of Recent Theory, Pol. Sci. Quar., Sept. 1895, X, 389–403. — E. A. Ross, The Standard of Deferred Payments, Annals of the American Academy, Nov. 1892, III, 293–305. — *Ibid.*, The Total Utility Standard of Deferred Payments, *Ibid.*, Nov. 1893, IV, 425–441. — F. Fetter, *Ibid.*, May, 1895, V, 882–896. — L. S. Merriam, The Theory of Final Utility in its Relation to Money and the Standard of Deferred Payments, *Ibid.*, Jan. 1893, III, 483–501. — *Ibid.*, May, 1894, IV, 969–972. — D. I. Green, Value and its Measurement, Yale Review, Feb. 1899, VII, 383–404. — A. M. Hyde, Gold, Labor and Commodities as Standards of Value, Jour. Pol. Econ., Dec. 1897, VI, 95–98. — J. Bascom, A Standard of Value, Quar. Jour. Econ., Oct. 1895, X, 54–66.

[4] Annals, 1895, X, p. 398.

[5] "The value of a thing, then, is the measure of the effective service that it renders to society as a whole. This service is subjectively estimated. The

By applying the theory of marginal utility in a peculiar way to labor engaged in production, he finds that the last additional supply of goods is due to the final increment of labor. "This virtually unaided labor is the only kind that can measure values. Attempts to use labor standards have come short of success, because of their failure to isolate from capital the labor to which products are due." Applying to society in general the conclusion he has reached as to an isolated man, the values of different complements of social goods are "measured by the mere duration of the collective labor that creates them." The disutility of marginal labor, then, is the proper measure of the value of goods.

Improvements in the processes of industry would, in the course of years, have the effect of greatly lessening the disutility of marginal labor. Therefore if, at any initial time, a money unit, such as a dollar, should be selected, which would purchase a constant fraction of a day's labor, and which would represent a constant amount of disutility of that labor, this unit would command the amount of goods secured by this part of a normal day's labor, and it would be an ideal standard of deferred payments. For, as the progress of society goes on, a given disutility of labor would yield a larger amount of commodities, and require a less number of hours of labor. Hence, a monetary unit, representing this fixed disutility of labor, would buy, as time passes, "a continually increasing amount of general commodities, and it would buy a decreasing number of hours of labor. . . . Labor that diminishes in actual amount, as measured in hours, and that diminishes in sacrifice entailed — this affords a standard of payment by which debtor and creditor may

standard for measuring it is the sacrifice, in final periods of labor, entailed on society in acquiring it. By establishing an equality between the gratification conferred on itself by articles different in kind and the element pain, society is able to compare the quantities of gratification in the different cases with each other. The price of things corresponds to the pain of acquisition, of which the unit is the sacrifice entailed on society by the work of the final minute in each of a series of days." Yale Review, 1892, I, p. 272. Cf. also, The Distribution of Wealth (1899), chap. xxiv.

share alike in the benefits of progress. . . . If the creditor, in making a loan, gave to the debtor the power to get a hundred commodities, representing a hundred hours of labor; and if the debtor at the end of fifty years pays to his creditor money that will buy a hundred and ten similar commodities, but was earned by ninety hours of labor, the gains from progress are shared in a way that is practically even." [1]

A fatal objection to this proposal is that already urged against the plain labor standard: it is wholly impracticable. Even if intended only as a means of justifying some concrete standard, it is far from being applicable. Further, by attempting to set up a standard of the marginal disutility of labor by which the values of goods are to be measured, Professor Clark gives his critics reason for assuming that he is ignoring the co-operation of capital with labor in the production of goods; and he here proposes a method of measurement which shares the objections to the labor-cost theory of value.[2]

There is no demonstrable nexus between the disutility, or subjective sacrifice, of the laborer and the exchange value of the article on which he is working. This point is well expressed by Professor Ross: [3] If an Esquimau gave a trapper a knife made by himself with three months' labor, ought the trapper to give in repayment the product of three months of

[1] Pol. Sci. Quar., 1895, p. 399.

[2] His process of reasoning, by supposing the capital to be constant, and then adding final increments of labor as a means of proving that the additional product was due wholly to labor, is not satisfactory, nor is it justifiable. Those last increments of labor are still working in conjunction with capital, and it is impossible, in that case, to say that the product is solely the result of labor. Moreover, following the same method of reasoning, by supposing the labor to be constant, and then adding final increments of capital, he ought to be equally able to prove that the additional product is due solely to capital. In that event, the ideal monetary unit ought to represent a certain disutility of capital. What ground is there for choosing labor rather than capital as a basis for the unit? Cf. Distribution of Wealth, chap. xxiv.

In the above discussion, I have for reasons of space — if for no other — assumed a knowledge of the theory of final utility.

[3] Annals, 1892, III, p. 302.

his own labor, or a Sheffield knife that he earned in half a day? Certainly exchange value (as distinct from mere importance) does not correspond to the marginal sacrifices of the laborer in such cases. Indeed, in trying to obtain a comparative estimate of several kinds of labor, we must have regard not only of qualitative, but of quantitative elements. Assuming time of effort as quantitative, and intensity and skill as qualitative, it is evident that no exact measurement can be made between the sacrifice of different persons in different, or even in the same, occupations.

Probably Professor Clark never intended his ideal unit to be a practicable one for working purposes. Doubtless he had in mind only a speculative basis (even though I must regard it as untenable) upon which he could justify the gold standard; for he concludes[1] as follows:

> "Views will vary as to the extent to which the gold dollar has lost in its power to purchase hours of labor. If we think that ideally it ought to lose in its power to buy hours of labor as much as it gains in its power to buy commodities, we shall unite in thinking that its actual behavior has varied comparatively little from the ideal requirements. In any case it has gained where it should have gained, — in its power to buy commodities measured in kind; and it has lost where it should have lost, — in its power to buy average labor, measured by the hour."

On the assumption that justice requires the debtor to return to the creditor the same *value* as that which he borrowed, the suggestion of marginal utility[2] as a common measure of the value of goods, has been made. Final utility of goods, or of labor, is a subjective estimate of the gratification arising from their use, or service. It goes without saying that these subjective satisfactions and sacrifices must vary greatly for different persons at the same

Marginal utility as a standard.

[1] Pol. Sci. Quar., 1895, X, p. 401.

[2] L. S. Merriam, Annals, Jan. 1893, p. 491. He also regards the commodity standard as unjust, because the restoration of the same amount of commodities by the debtor is not a return of the same *value*.

time. To attempt to get a perfect standard of deferred payments out of such elements becomes conspicuously irrational when we attempt, as we must, to express quantitatively the subjective feelings of different persons at different periods of time.[1] Such a scheme is too elusive for practical consideration. The objections become still more grave when we realize that the utility of some portion of goods might be not less than infinity. Marginal utility of goods is as impossible of practical use for a standard as is marginal disutility of labor.[2]

Professor Ross[3] gives the *coup de grâce* to the theory that there is any real unit of marginal utility by which the value of the other and antecedent amounts of utility can be measured. Among several instances one may be cited: "A Dakota farmer has provided ten cords of wood as his winter fuel. Heavy snows come and a less provident neighbor wishes to buy wood of him. He will part with a cord for $7. Will any one say that the total value of the stock of wood is therefore $70? Let him but offer $70 and see if he gets the wood." That is, the total utility is not got by multiplying the unit of marginal satisfaction by the number of units of goods.

Because Professor Clark attempted to justify the gold standard on the ground that it acted much as an abstract, or ideal, quasi-labor standard would, and because this latter theory could be confuted, Professor Ross was led to urge that the justification of the gold standard disappeared with

[1] Professor Fetter says: "What measures the marginal utilities? If one gives the answer obviously and logically required by the theory: the intensity of the desire which the creditor will satisfy with the goods, and this be measured by an absolute standard, and not simply in relation to other goods, preposterous consequences are involved in its application to deferred payments. The individual's wealth would rise and fall with his changing moods from elation to melancholy. . . . Not until the unit of happiness or utility is materialized, and is applicable to the measurement of the want-satisfying power of goods to different persons as well as to the same one at different times, could the marginal theory of value aid in the question of the standard of deferred payments." Annals, 1895, V, p. 891.

[2] Cf. Fetter, *Ibid*, p. 894.

[3] Annals, Nov. 1893, IV, p. 430.

it. He insisted that the gold standard was supported by an extreme cost of labor theory of value; and he very properly rejected the latter as incorrect. As an antithesis to this system, he placed a standard of deferred payments based on the return by the debtor to the creditor of the same *value* of goods; this, he claimed, was the theory of the bimetallists. Thus, the gold standard (on Professor Clark's assumption) set up a theory of justice according to which the return of equal quantities of labor would return a value equal to that borrowed; while the bimetallists (as in the tabular standard) asserted that a return of equal quantities of goods would return a value equal to that borrowed.[1] In this way Professor Ross saw that the gold standard had been justified only by a cost of production theory of value quite easily overthrown; while the bimetallists had based their claims on the marginal, utility theory of value, which was correct. An antagonism was thus wrongly set up by Professor Ross between the two theories of value, as if their boundaries were coterminous with the differences between the followers of the gold standard and bimetallism. In truth, the gold standard need not be supported on any such basis.

Association of gold and labor standards.

Professor Ross, however, having opposed the theory of a standard based on the marginal disutility of labor, as explained by Professor Clark, set himself to give a correct unit of measurement by propos-

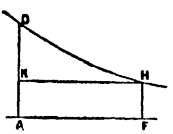
The total utility standard.

[1] Annals, Nov. 1892, III, p. 299. Bimetallists, he says, assert that equal quantities of *goods* are of equal value though separated by a period of time, while monometallists assert that equal quantities of *labor* are of equal value though separated by time. He claims wrongly for bimetallism the results of the multiple standard. Wrongly, because, granting all its claims, bimetallism could maintain a fixed relation between only two articles, gold and silver. It was never pretended for it that it could adjust itself to the progress of the arts, which would lower prices, by cheapening commodities, relatively to the double standard, as well as to the single gold standard. Therefore, even if bimetallism were workable, changes of price would ensue relatively to the double standard, and the problem of deferred payments would still remain. If we were to grant that the gains of progress should, in justice, go to the debtor, we cannot admit that bimetallism would bring this about. But, as said before, the discussion of the logic and theory of bimetallism must be deferred to the volume on Metallic Money.

ing an objective, or total utility standard (instead of the marginal utility standard):

> "The debtor is not to return a value measured in *labor*, nor yet a value measured in *commodities*, but a value measured in *objective utility*.[1] And with industrial progress this is secured by a *slight excess* of commodities.
>
> "During industrial progress, then, a just monetary standard should permit the alteration in the ratio (both genetic and exchange) between labor and commodities to appear in a rising price of labor rather than in falling prices for commodities. The money unit should not appreciate with labor, but should rather depreciate with commodities. The circulating medium should suffice to maintain prices of commodities at very nearly their former level."[2]

This standard, however satisfying to the theorist, is certainly as impracticable and profitless as any other method of measurement based on varying utilities. As Professor Fetter justly says: "It is utterly impossible to estimate . . . the total utility of a sum of goods of different kinds. . . . There may be numerous goods the total utility of which, to a being loving life, is infinite."[3] A standard of deferred payments based on total utility is another of those speculative suggestions which make the theoretical economist an object of despair to the men of affairs. Its impracticability, moreover, is emphasized by the proposed method of regulating prices through changes in the quantity of the circulating medium. In later chapters it will be shown that this method is impossible of execution, because only one side of the price ratio is con-



[1] A F H D represents Professor Ross's total objective utility, while the marginal utility standard would be represented by A F H K. Annals, Nov., 1893, p. 426.

[2] Annals, Nov., 1892, III, p. 305.

[3] Annals, May, 1895, V, pp. 884–885. Professor Fetter also believes that Professor Ross's total utility standard, being based on the idea of a return of the same *value*, does not differ much from the tabular standard, since it requires the return of the same amount of commodities borrowed, with a slight excess to compensate for lessened degree of social esteem. *Ibid.*, pp 883–885.

sidered; and that it is incorrect to suppose that prices can be affected by altering the volume of the medium of exchange, rather than the value of the standard in which prices are expressed.

In this chapter, it will be recalled, we have examined several different kinds of standards, apart from the precious metals: the commodity, or tabular, standard; the labor standard; a quasi-labor standard, based on the marginal disutility of labor (leading to the support of the gold standard); the marginal utility of goods; and the total utility of goods. The advantages and defects have been noted as clearly as could be done in the space allotted to this subject.

It must be clear from the preceding discussion that a perfectly just standard of deferred payments is not possible.[1] In the nature of things, we cannot expect anything more than an approximation to justice. The solution is one which remains in the realm of expediency, and which is every day being settled by a rough adjustment between debtor and creditor. As before observed, the consensus of opinion in commercial nations in favor of the gold standard is based on the belief that the accumulated stock of it (owing to its durability) gives such stability that ordinary changes in the demand and supply of gold produce little or no change in prices, at least through causes operating on the money side of the price ratio. But the fact remains that the advantages due to the progress of the arts go, under the gold standard, to the creditor. If the multiple standard, which transfers these gains to the debtor, were existent, the assignment of these gains might be accom-

A perfect standard unattainable.

[1] "A standard of deferred payments which shall never work hardship to any individual must be recognized as unattainable. The most just and the most nearly ideal standard to which society can remotely hope to attain is one where, consistent with the minimum of discouragement to both debtor and creditor because of the terms of the contract, the greatest available foresight is employed to ensure that the benefits of industrial advance shall on the whole go to those classes in whose encouragement and economic growth society has the greatest interest." Fetter, *ibid.*, p. 896. On our analysis of debtors and creditors the creditor class should be the one to be encouraged. On the general question, cf. also, Bascom, Quar. Jour. Econ., Oct 1895, 54–66.

plished by the decision on the rate of interest, accordingly as one or the other standard were used. In that case a payment which is not pure interest is introduced under a nominal payment of interest. Practical adjustments such as these seem to be the only solutions of the problem of deferred payments.

CHAPTER IV

CREDIT

One has only to turn to the discussions on currency and credit which have accompanied the great development of England's commerce during the last half-century to see how the changing needs of an advancing society evolve new problems for the economist, and call forth new growths of economic doctrine. — CAIRNES, *Character and Logical Method of Political Economy*, p. 39.

A. WAGNER, *Der Credit* in Schonberg's Handbuch, 3d ed. (1890), I, pp. 379-415; IBID., *Grundlegung der pol. Oecon.*, I Theil (1892), pp 344, 345; E. VON PHILIPPOVICH, *Grundriss der politischen Oekonomie* (1899), I, pp. 243-270; A. HELD, *Grundriss für Vorlesungen über Nationalokonomie*, 2d ed. (1878), § 12, pp. 61, 62; J. CONRAD, *Grundriss zum Studium der politischen Oekonomie*, I Theil, "Nationalökonomie" (1896), § 28, "Das Wesen des Credites;" A. E. F. SCHAFFLE, *Das gesellschaftliche System der menschlichen Wirthschaft*, 3d ed (1873), II, p. 310; W. ROSCHER, *Grundlagen der Nationalokonomie*, 20th ed. (1892), § 94, pp. 241-244; C. KNIES, *Geld und Credit*, "Der Credit," 2d ed. (1876-1879), 2 vols. G. COHN, *Grundlegung der Nationalökonomie* (1885), § 416, pp. 550-552; W. LEXIS, *Kredit* in Handw. der Staatsw.; M. BLOCK, *Le progrès de la science économique depuis Adam Smith*, 2d ed. (1897), I. pp. 481-504; L. WALRAS, *Études d'économie politique appliquée* (1898), IV, "Crédit," pp. 305 ff.; P. LEROY-BEAULIEU, *Traité théorique et pratique d'économie politique*, 2d ed., III (1896); H. D. MCLEOD, *The Theory of Credit*, 3 vols. (1894-1897).

§ 1. IN discussing the standard of deferred payments the prominence necessarily given to the time element is, in reality, the very characteristic by which modern industry has come to be sharply distinguished from that of primitive conditions. When there was no division of labor, exchanging of goods and the creation of obligations were at the minimum; but the changes introduced by the modern complexity and interdependence of industrial processes, by the division of labor, and by the development of vast operations merely in supplying raw materials for commodities to be finished for the consumer a considerable time ahead — all these influences have brought it about that most of the industrial processes of to-day necessarily involve a time element.

Moreover, as this tendency has become more pronounced, the function performed by capital has grown to be more and

more important. Capital is used as a means of discounting the future; it bridges the operations, for example, beginning with the planting of wheat and ending in the distribution of bread to the consumer. As economic civilization has advanced, as the time element has appeared more generally in processes having as their aim greater productivity, so capital, as it has become more urgently necessary, has become more efficient. Without being led afield into a discussion of capital, which would be alien to this treatment of credit, it is clear how essential to the understanding of credit is a grasp of the fundamental services of capital to society. So far as it is a means of bringing present goods to the service of producers whose efforts end in the future, the function of capital is self-evident.

Credit aids the ends of capital.

With the division of labor, the marvellous inventions of machinery, the prolongation of industrial processes (so that a unit of product can in the end be more cheaply sold), the growth and prodigious increase of all forms of capital have naturally led, as a help to this movement, to the evolution by society of the practical means by which men of affairs, when preparing for the future, are enabled with the least waste of efficiency to obtain control of property and capital in productive efforts. As a part of this evolution, as a practical means to an end involving futurity, credit has come into existence. In its simplest terms, it is a transfer of commodities involving the return of an equivalent at a future time;[1] but subsequently it developed into something more than that — which it will be

[1] E. Nasse (reviewing Knies in Jahrbucher für Nat. und Statistik, N. F., I, pp. 83–105) points out that the most essential characteristic of credit is not the time intervening between loan and repayment, but the transfer of the right to use property which it effects (p 85).

Knies (Der Credit, I, p. 68) defines credit as an "exchange in which one party renders a service in the present, while the return made by the other falls in the future." E. Nasse criticised this definition, as emphasizing too much the element of futurity, and gave his own: "Credit is the confidence felt in the future solvency [*Zahlungsfähigkeit*] of a person, which enables him to obtain the property of others for use as a loan, or for consumption" (*op. cit.*, p. 84). Jevons regarded credit as "nothing but the deferring of a payment" (*op. cit.*,

my purpose to explain later. Credit is machinery invented to aid in accomplishing some of the purposes of capital; if an essential function of capital is to discount the future, the essential characteristic of credit is the element in it of futurity. The connection is not far to seek.

To get credit, therefore, is to obtain a transfer to one's self of commodities under an obligation (variously expressed, according to different habits and circumstances) to return an equivalent amount at a fixed date in the future. A careful analysis of popular uses of the word "credit" brings us, in almost all cases, to this ultimate conception. When we say of a man that he has "good credit," however, we must not confound the reasons for granting credit with credit itself; if he has the means of convincing the lender that he is sure to be repaid, the borrower's "credit" is said, in popular usage, to be good. Here we are entering upon the reasons why credit is given, which lie beyond the statement of what credit is.

Popular usage of credit.

p. 238). Levasseur's definition was: "The exchange of an actual reality against a future probability" (cf. Question de l'or, p 244).

A. Wagner's definition seems unnecessarily verbose: "Credit is that private economic exchange, or that voluntary giving and receiving of economic goods between different persons, where the service rendered by the first is performed from his confidence in the assurance given by the second that he will render a recompense at a future time" (Schonberg's Handbuch, I, p. 380).

McLeod speaks of "a credit as the Present Right to a Future Payment" (*op. cit.*, I, pp. 88, 571).

"Credit," says P. Leroy-Beaulieu (Traité théorique et pratique d'économie politique, 2d ed., III, p. 354), "is the exchange of an actual present good against an equivalent which one engages to furnish within a certain period."

Carlo F. Ferraris (Principii di Scienza Bancaria, 1892, p. 5) regards credit as "the whole of those economic and moral conditions because of which men consent to make payments in the present on the promise of repayment in the future."

L. Walras regards "credit as the lending of capital" (Études d'économie politique appliquée, IV, p 305).

J. Conrad (Grundriss § 28, pp. 23, 24) and A. Held (Grundriss, § 12, p 61) make credit a matter of confidence, etc.

E. von Philippovich (Grundriss, I, § 104, p. 243) makes credit the relation between parties to an exchange "through which the one, by virtue of a service already performed (a transfer of goods, a payment, or work done), may demand from the other a return for the service."

In defining credit as confidence in the future solvency of a borrower, Nasse criticises Knies for failing to distinguish between credit and credit transactions. But if credit is regarded as the transfer of goods, there is no such distinction; credit appears only in a transaction. What is a man's "high credit"? It means that his reputation for repayment is high; that he easily gets a transfer of goods. If we were to accept Nasse's conception, credit might exist without ever being used; for we might have confidence in a borrower's power to repay which he never exercised. Then an expansion of credit, in this sense, would lead us to the absurdity of saying that, with an increase of confidence in borrowers, there had been an increase in a country's credit. Of course, there would have been an increase in the possibility of using credit, but that is a different thing from saying that credit itself has been increased. From my point of view, however, an expansion of credit could take place only by transfers of goods to a greater amount. In any other sense, credit seems to be a metaphysical abstraction.

Distinction between credit and forms of credit.

It is desirable, also, to distinguish between credit itself and the forms which arise out of credit transactions. Economic and legal conceptions should be carefully kept apart. The actual transfer of goods is the essential economic part of the credit operation; the promissory notes, drafts, bills of exchange, book entries, and the like are merely the evidences of the credit transactions which have been used to facilitate, in a greater or less degree, repayment, and they differ from each other greatly in business convenience and legal force.[1] The readers of economic treatises, however, will find credit usually treated as if it could be covered by an account of the use of notes, checks, and various forms of credit. This, in my judgment, has led to some popular fallacies on credit and money which are difficult to eradicate. The forms of credit will

[1] To know the law governing bills and notes is a very different thing from knowing the economic principles underlying the operations in regard to which the legal forms have arisen.

be treated hereafter, when the monetary uses of credit are taken up.

Whenever the time element is eliminated from a transaction, it will be seen at once that credit does not enter into it. A transfer of goods for which an equivalent is rendered on the spot would never be thought of as a credit operation. In fact, buying and selling for an immediate consideration (or "cash") is generally understood to be the very opposite of credit. It has been claimed that confidence and not the time element is the primary element in credit.[1] It is the time element, however, which is essential; the matter of confidence, on the other hand, appears only because the repayment is relegated to the future. It is only because futurity is the central thing in credit, that confidence appears as a consequence. Therefore, confidence cannot be spoken of as the pivotal thing in credit; although it is influential in deciding whether credit shall be given or not. The difference is wide: walking is one thing, the reasons why one walks — to one's office or to a funeral — are very different. Hence it is well not to assign much importance to the easy etymological derivation of credit from *credere* (meaning "to have confidence").

Time element, not confidence, primary in nature of credit.

[1] Adolph Wagner ("Der Credit," in Schönberg's Handbuch, I, pp. 379–415) follows Knies in emphasizing the time element and regarding confidence as a necessary consequence of it; but Wagner gives the latter some proper importance (pp. 380–393). G Cohn (Grundlegung, pp. 551, 552) criticises the emphasis on the time element because it "emphasizes a merely secondary phenomenon which follows from the nature of capital as a durable good; for, since durability belongs to the concept of capital, the use of which is transferred, it is perfectly evident that every transfer of the right to use capital carries with it the idea that the capital is to be restored later."

M. Block's (Le Progrès de la science économique, I, p. 481) position is: "We admit freely that confidence plays a large rôle in the matter of credit; without confidence many transactions could not be made; but in other cases it must be said that confidence is more or less, or even totally, absent. Peter comes to Paul, and asks for a loan of 100 francs. Paul has no confidence in Peter and refuses. Then Peter says: 'My watch is worth a good deal more than the 100 francs; you may have it as security; besides, I will pay the usual interest' Paul, who expresses the value of his capital in money, lends the 100 francs; but confidence had nothing to do with the matter. It is the value of the security which determined his decision."

By general agreement, usage would never allow any obligation entered into for the future delivery of personal services to be spoken of as credit, unless there appears in connection with it some transfer of goods. We may, therefore, agree to confine credit operations to goods or property of a transferable kind. And, in the conception of credit, with the transfer goes the right to make any ordinary use of the goods; it carries with it the power, not merely to keep possession, but to destroy entirely, — and commonly with the purpose of reproduction, — if that is the best means of increasing product and getting back goods for repayment. Hence the lease of a house would not be a credit transaction. That is, we have in mind, generally, the transfer of quickly salable goods, which need not always be returned in kind, but by an equivalent; not the same wheat, or wool, or gold which was borrowed, but the equivalent of them.

Credit limited to goods.

Many contracts appear as results of credit transactions. For instance, A borrows the means to finish the building of his house; he obtains certain goods which he inserts into his structure; and he gives a promissory note to B for its repayment, secured by a pledge of his property in the form known to the law as a mortgage. The note and the mortgage are merely the legal methods adopted to make repayment more certain; they are not essential in the credit itself. The real importance should be put on the transfer to A of means returnable to B in the future. Legal and customary forms intended to secure repayment have created different devices in the same community; while the prevailing habits of different countries have given rise to varying methods of obtaining the same result. In one situation, for instance, a book entry, in another a bill of exchange, in another a promissory note, are found most suitable. In short, the conditions of the loan, the opinions and convenience of the parties to the contract, and the like, may bring into use a great variety of legal forms, all resulting from the primary transfer of goods. The un-

Legal forms not pivotal to the idea of credit.

due insistence upon legal forms[1] arising out of credit draws attention away from the economic processes essential and intrinsic in it to the non-essential and external forms outside of it. The familiar case of a bank loan illustrates this truth: there is the essential element in the transfer of capital to the borrower on an obligation to return an equivalent value at a fixed time in the future; but the evidences of the transaction, whether in the form of a book entry as a deposit, or the passing of the bank's own notes, or the giving of a cashier's draft for the sum, are secondary matters, or consequences, arising out of the original credit operation. As said before, the latter form merely the machinery for obtaining greater or less security with a view to repayment. Actual money, in such cases, will be found to perform only the secondary office of an intermediary between different amounts of goods. The true relations of credit to money, however, will appear as our subject is developed.

§ 2. Strip any credit operation whatever of its passing and superficial marks, and you will find that in its essence it is a transfer of goods involving futurity. So important is this general proposition that it needs all the elucidation which can be given within our limits; for the reader should be warned that this view is at variance with popular opinion, and even with that of eminent writers. Professor Nicholson, for instance, says that all credit rests on money.[2]

Here please recall the distinction between a standard in which the prices of goods are expressed, and a medium of exchange by which the goods are in fact transferred. Forms of property whose prices are expressed in terms of the standard may be actually exchanged without using the standard commodity as a medium of ex-

Credit is based on goods.

[1] Although McLeod has made many valuable and penetrating observations on credit, in my judgment he has fallen into error in putting such great emphasis on legal forms in his prolonged discussion of rights and actions.

[2] Monetary Problems, Part I, chap. vi. The full discussion of the effect of credit on prices will be given later in this chapter.

change. Without anticipating the exposition of the practical aids furnished by modern banking expedients, it can be shown that credit is, in effect, a transaction in goods, although these goods are expressed in terms of money; that credit is granted only because the borrower can give good grounds for delivering the proceeds of salable goods as means of repayment; and that goods form the basis of credit. Money plays only a secondary and minor part, auxiliary to the credit operations. Just as the amount of money is always and necessarily far less than the mass of salable goods in the market, so the amount of money bears a low ratio to the sum of credit transactions which it helps on. The real object of such operations, as in all production and consumption, is the possession and use of goods which satisfy wants. When a man borrows from a bank, he gets the loan usually in the form of a right to draw a given sum of money; but actual money is of no use to him except so far as it aids him to get the coal, or cotton, or labor he needs in his business. The popular impression that a man borrows "money" is misleading; it is no more than the wrapper in which his goods come to him. The error resides in confusing the means with the end.

Whenever credit is granted, it will be found that, in return for the present use of means of payment in current funds, a man has pledged some property he owns, or is believed to own, but to which he still holds the title in case he repays the loan. We are not now concerned with the particular form of the pledge, whether a single-name note, a note with an indorser, a note with collateral, a bill of exchange, or what not. It usually happens that the borrower has goods, or securities, or salable property — or it may be only a legitimate expectation of goods — which he cannot use, in their present form, as general purchasing power. If the manufacturer could turn the stock of harvesters and mowers in his warehouse into means of payment, he could buy more material, employ more labor, and have more machines ready for the next selling season; or if he has sold them to jobbers on time and if he could get present means of payment

Analysis of a credit operation.

for the sums due him in the future, he could enlarge his business. At this point the development of credit comes to his aid. On the basis of property, he gets a loan; credit enables him to utilize his resources without parting with their ownership (except as modified by the pledge); it enables him to change a command over his specific kind of goods into a command over goods in general. It is credit which enables men to coin property into means of payment. It is what Sir James Steuart so well described as "melting down of wealth into bank money."

Credit institutions.

Naturally there arises some methodical arrangement for giving credit, by those who have property and capital to loan. Such institutions are usually called banks; although lending may be carried on by individuals. The sums to be loaned, although expressed in dollars, represent goods which lenders are willing to hand over to borrowers on obligations for repayment. Unused funds accumulate in bank deposits, and sums owned by persons unable or unwilling to employ them in production collect in institutions for investment. These goods appear on the deposit accounts in terms of money; but none of the institutions have money to give out for the sum of all the liabilities. Only specie enough is kept to meet the demands of those suspicious, or frightened, persons who may wish to turn goods into actual cash. Of course, if all wished to do so, not all could do it, and general suspension would result. This conclusion makes it clear that the real object is to get from goods we have to goods we have not; that money is used only for facilitating this process. But credit is also a very clever device for getting from goods to goods without resorting to the actual transfer of the specie standard (or other money).

Typical illustration of credit.

A typical loan transaction, containing the essentials of all, may be taken by way of illustration. A business firm sells to jobbers on ninety days' time cotton sheetings to the amount of $10,000. If confined to the actual capital owned by the members of the firm, or company, their operations would be restricted; but if they

can borrow of others additional capital, on the strength of the goods they have sold, they can coin the cotton sheetings held by jobbers into means of payment, and by purchasing new materials, employ additional labor, and increase their product. The sold goods are used as the basis of a loan at a bank. The bank buys the right to receive $10,000 ninety days from date; the firm gets the right to draw $10,000 (less discount) on demand. It should be kept clearly in mind that this credit operation, so far, was based on goods and not on money. Now, whether the borrower will draw out his $10,000 in specie (or legal money) is a question quite independent of the credit operation; it is a question of the business habits of the community in which the firm exists, that is, whether actual cash, or checks on deposit accounts, are in general use, whether it is a rural or a city district, or whether there is a general commercial distrust and panic. These latter conditions do not have to do with the granting of the credit (except indirectly), but only with the proportions of reserves to liabilities. In most cities, the firm having $10,000 (less discount) to its credit would buy cotton, purchase machinery, and the like by drawing checks on its deposit account, not using standard coin at all. That is, it has changed its control over sheetings — one form of goods — to cotton and machinery — other forms of goods more desired at that time. By coining the sheetings into general means of payment at the bank, the firm has been able to direct its purchasing power thus obtained to any kind of article and in any fractional sums.

Services rendered by credit institutions to society.

The service thus rendered to the community by an institution of credit is inestimable. The institution which thus coins salable property into means of payment for the borrower does so only after deciding that the goods at the basis of the transaction are marketable; that is, that notes, or bills, in the leather trade for instance, are safe paper to discount. In brief, the act of coining property into immediate means of payment is done on the responsibility of the lender; since if, by any mistake of judgment or honor, the goods behind the paper are not sal-

able, or if they are not capable of being reached because of error or fraud, the institution pays the scot, and stands the loser.[1] The situation is much the same, if the collateral — which is in reality simply a title to forms of property — depreciates; since that is only another way of saying that the value of the goods, on which the securities are based, have fallen. Hence the process always has this corrective, this brake, that a mistake is followed by loss to the bank, or lender. The lender is, therefore, under a constant pressure of self-interest to see that the goods behind the paper are salable, and that the proceeds of the sale will appear in amount sufficient to take up the obligation at maturity. The credit institutions, by thus acting, even under a heavy responsibility for inerrancy, enable the community to set into circulation — into the free exchange of goods against goods — a vast amount of property and commodities, which otherwise must remain an inert mass in the hands of owners. By credit operations they enlarge the industrial activity of the very persons most ready and able to act judiciously. If there were no credit, we should not see, as now, individuals and firms enabled to do a business enormously greater than would be possible with only the capital which they actually own. The encouragement of industry and the enlargement of transactions are the services rendered to society by banks and lenders. They belong to the class of things, like division of labor and progress of the arts, by which the world has been helped on in its economic growth. Credit is a creation of men in the natural evolution of obtaining the largest possible satisfactions consistent with human intelligence and with the character of the globe on which we live.

Notes, bills, drafts, checks, book credits, or any form of obligation resulting from a credit transaction, come into existence, not antecedent to, but as a consequence of, a trans-

[1] As Hadley (Economics, p 245) says, the bank "may be said to insure credit. If it discounts a three months' note and allows the maker to draw checks upon the sum with which it credits him, it protects the public, which accepts such checks, from the risk of subsequent insolvency on the part of the maker. It is because this insurance is effective that the public will accept checks where it will not accept promissory notes."

fer of goods involving futurity. Paper is purely fictitious and illegitimate which is not the outcome of an operation in goods; and we are enabled to test whether loans are legitimate, or not, according as we know whether the discounts are granted, or not, for actual transfers of salable goods. This test gives us the means of drawing the line between sound and unsound banking. An increasing amount of notes and other credit instruments may be a direct and legitimate evidence of an increasing amount of transfers of goods, and by credit the transfer may be effected in any expanding quantity. The limit to the increase in legitimate credit operations is always expansible with the increase in the actual movement of goods. The concern excited by such expansion is groundless, so far as it is based upon goods or restrained within a safe estimate of the value of these goods.[1] Salable goods transfer themselves with ease and despatch through credit operations; no one, in fact, before buying and selling ever thinks of waiting until the forms of credit are sufficiently numerous to warrant the exchange of goods. Buying and selling take place, first, at prices voluntarily agreed upon; and, secondly, forms of credit arise out of these transactions for an equivalent value, drawn in terms of the monetary denominator, although the latter may never be used at all in the exchange[2] operation.

Sound and unsound credit.

Credit being in its simplest form a transfer of goods involving an obligation to return an equivalent in the future, it will be found, however, that in modern society credit has developed in practice into something more akin to money. Clearly enough, it does not act as a standard, or common

[1] The idea that credit is expanded according to the will of the banker, and that it is capable of undue expansion, without relation to soundness of resources, reflects a confusion between legitimate and illegitimate credit. Excluding fraudulent banking and abnormal credit, the lender obtains full and sufficient value for every liability; his operations are based on salable goods. Cf. Nicholson, *op. cit.*, p. 74: "There is no limit to the creation of credit substitutes for coin, except the will of bankers, traders, and merchants"

[2] "Probably not one bill in 100,000 is ever paid in money or bank-notes." McLeod, *op. cit.*, I, p. 317.

denominator. Its essential relation to the subject of money is to be found in the fact that society has in credit created a medium of exchange. Credit is the natural result of the premium always existing in business transactions to evolve a means of avoiding the risk and loss attending the actual transfer of the valuable standard; and it remains in use because transactions involving futurity are thereby rendered possible and legitimate to the immense advantage of commerce and industry. It is the evolution of a refined system of barter, rendered necessary by division of labor, the interdependence of industries, and the introduction of the time element. A clear understanding that credit is based on goods, that its service is that of a medium of exchange, is necessary to a just treatment of the difficult question of the effect of credit upon the prices of goods, — to be discussed later.

Credit a medium of exchange.

The reason for the common belief that credit is based upon and limited by money, is evidently to be found in the fact that all the evidences of credit transactions (such as notes, bills, checks, book credits) are drawn in terms of money; and that every business man assumes that his checks, or deposit account, or bills payable, can be liquidated in money. If this were not so, he reasons, in preparing to meet his own obligations, what would be their value to him? Paradoxical as it may seem, it is absolutely true that the mass of obligations could not possibly be, and were never really intended to be, liquidated in actual money. The fundamental truth is that the quantity (and value) of goods vastly over-passes the quantity (and value) of money; only a portion of the wealth of any community is, or ought to be, invested in its machinery of exchange. Provided that exchanges go on efficiently, the less the country's wealth invested in this unproductive form the better. To speak as if a country were better off the greater the amount invested in its money machinery is to glorify the fact of its backward commercial growth; such an attitude would imply that a farmer could turn the soil better by a plough deco-

Credit not liquidated by money.

rated with costly precious stones when one worth one one-thousandth as much would do the work quite as well. Inasmuch as all the population of a walled city do not wish to pass through its gates at once, a few gates suffice at any one time; so, likewise, not all of the mass of goods are seeking exchange at the same moment. As a consequence, the amount of money needed for the purposes of exchange is, of course, far less than the total amount of goods. This is an economic commonplace.

The reasons why actual cash is needed are not, except in small retail transactions, generally those which have to do with efficiency of exchanges. In the ceaseless circuit of moving goods, men, getting desired satisfactions by giving one kind of surplus goods for others not possessed, do not care for money itself. Indeed, it is the last thing men really need; since exactly as long as money is held does the owner lose, because money itself is barren. It can, of itself, not give any satisfaction (as, *e. g.*, in Ladysmith during the siege). Therefore every intelligent manager tries to keep on hand as little money as possible; to the extent that he is obliged to hold it, it earns no interest. Hence the desire to invest it at once — that is, to exchange it for goods, or to set it going in production by buying a share in some productive enterprise.

In panics credit is really liquidated by goods.

The final and conclusive evidence that goods, not money, form the basis of credit operations, is given when, in times of distrust and panic, almost every one, wishing to anticipate maturing obligations, tries to turn goods into actual money. Then it is seen that it cannot be done: an *impasse* is met. And naturally; if there were no fright, no panic, men would not think of struggling for money. That effort arises, not in the normal processes of exchange, but from abnormal conditions of overtrading, misjudgment, and ill-adjusted production, when at the same time legal obligations [1] must be met (supposedly) in

[1] On this point, however, see the exposition (in chap. xiv) that legal payments themselves are made in the forms customary in the community, and not even then necessarily in lawful money.

money. In brief, not all transactions can be liquidated at once in actual money; and if it were possible, that is not a process which would most economically provide for our daily wants. The best machinery of exchange is that which enables our own product to be most easily exchanged for the various goods which we desire; and money is but one of the means to the end. Credit, also, is an important instrument, or medium of exchange. Certain reserves of money are necessary parts of the system, to provide against lack of confidence, general distrust, and unreasoning human nature. As McLeod says:[1] "Though in every system of Credit there must be an ultimate reserve of specie, yet that ultimate reserve does not bear a constant, fixed ratio to the quantity of Credit: but it mainly depends on the organization of Credit: the more highly organized the system of Credit is, the less is the requisite amount of the ultimate reserve of specie. . . . Any amount of Credit may be created and extinguished without any relation to the quantity of Money."

§ 3. Credit will here be treated only in so far as it performs a function of money, and in a way to give us a better understanding of the phenomena of prices. Hence the history of credit, the various legal distinctions, and a detailed examination of its many forms do not seem to be relevant to this inquiry. Most of these points have been thoroughly studied by Knies in his monumental work on *Credit.*

The functions performed by credit should appear clearly from the above discussion:

(1) Growing out of the evolutionary processes of industry, whose result is to increase the product of the community, the control of additional capital, in order to discount the future, was a proper desire. Credit, in its inception, is not an increase of capital, but a means by which capital can be given mobility, and hence greater efficiency; just as horses, although they give to cavalrymen no increase in actual numbers, allow an increased activity

Functions of credit.

[1] *Op. cit.*, II, pp. 734, 735.

and mobility which is equivalent to a greater force of men. Credit does not increase capital in any material sense. If, as McLeod says, legal rights of action (originating in a transfer of goods) are credit, and if these rights can be bought and sold, there is an increase of exchangeable things, or wealth. But, even then, it is as plain as a pikestaff that the actual means of satisfying men's wants have not been increased by merely dickering in the titles to such goods — any more than by increasing the number of names given to a man do you enlarge his muscles, brain, or stature. By credit, capital itself is not increased, any more than a man's own muscular power is increased when he is using a crowbar, although he is, by such a device, making a more efficient use of the muscle which he already possesses.

Credit does not create capital.

(2) The quality possessed by credit of enabling capital to become more efficient (like the crowbar for the workman) is the thing which has led some to say that credit actually increases a country's capital. Clearly enough, transferring goods is not a creation of goods; and credit is a far different thing from production. But the increase in the efficiency of any agency of production bears fruit in a distinct increase of product. In every community there are some floating funds awaiting a suitable investment; new capital is constantly coming forward; some capital is turning from one branch of industry to another, from one district or state to another; some persons are retiring from business; inheritances may have been received by minors or women, incapable of directing the management of their capital — from such sources as these the supply of loanable funds coming forward to join the vast amount already engaged in industry creates a reservoir of capital which by credit institutions or by private persons is readily passed into the hands of those who, either because of superior management or of special demand for certain goods, find pressing use for additional means. Automatically, credit allows capital to go into those industries which are most prosperous, and

Credit increases efficiency of capital.

withdraws it from those which can make less fit use of it.[1] Thus credit indirectly increases product by aiding in the facility of employing capital, a prime agent of production.

(3) By coining property into means of payment, as already described, credit increases enormously the volatility and transferability of all kinds of salable goods for industrial use. It changes control over future goods, or goods in fixed form or place, into a control over present, or usable goods. In this fashion credit performs the function, on a large and imposing scale, of a medium of exchange.[2]

Credit as a medium of exchange.

(4) When a person is enabled by aid of credit institutions to coin an enlarged quantity of goods into means of present payment, his power of purchase (supposedly) in cash at any one moment is limited only by his money and the amount of salable and bankable goods he possesses. To be sure, these grants of credit demand invariably the necessity of repayment; but the means of repayment (as well as the obtaining of credit) depend on there being enough salable goods forthcoming at maturity to meet the obligations. If goods are salable, the change into forms of money is an easy and secondary matter. On the other hand, miscalculations, accidents, and unforeseen events may prevent repayment by stopping the outcome of goods, or by lowering their value through some check upon demand. The possibility of buying, however, on an enlarged scale by the use of credit, no matter what its perils, exists. It is a means of throwing a vast purchasing power into any one direction; and, as we shall soon see, it is capable of abnormal extension in general. The immediate effect of elation, hopefulness, and prosperity is certain to cause an extension of unsupported or false credit, and to aid in the irregular and

Credit exaggerates movement of market prices.

[1] This was fully explained by Bagehot, Lombard Street, p. 13 ff. Cf., also, Cairnes, Leading Principles, p. 62.

[2] McLeod is quite right in saying that "the true function of credit is to bring into commerce the present values of Future Profits" (*op. cit.*, I, p. 88; cf. also p. 571).

extreme movements of market (not normal) prices. Hence the cycles of rising and falling prices are exaggerated by this possible use of credit.[1]

§ 4. Various forms of credit arise from a transfer of goods, — the idea essential to all credit, — but they differ in many ways according to the agreement of the parties, the business habits and traditions of the community, and especially for reasons arising from different legal methods of enforcing repayment. In fact, the forms of credit transactions and their classification belong more to a legal[2] than to a monetary study, in which one may easily be led away from the fundamental questions involved.

Kinds of credit transactions.

The kinds of credit obligations differ from each other mainly as regards the methods of securing repayment. It is in such ways that the business public has gradually worked out processes of loan obligations which allow the lender to eliminate almost entirely the question of personal confidence in the borrower. Instead of a simple promissory note given by the borrower (and indorsed by a fellow-merchant), a note secured by the deposit of sufficient collateral, made up of salable securities, is a method by which an estimate of the personal honesty or probity of the borrower is unnecessary. In such an operation the main task is to keep informed as to the prices of the collateral, and to see that the value of the securities is always sufficient to cover the loan.

Promissory notes.

Notes discounted on occasion of an actual sale of wheat, wool, cotton, or the like, evidenced by certificates or bills of lading, afford a basis of normal and legitimate credit. Just to the extent that discounted notes are based only on personal judgment or favoritism, without a basis of goods, they are speculative and abnormal. Such

[1] This conclusion may be considered in connection with A. Wagner's point (*op. cit*, pp. 394–397) that credit tends to steady prices by allowing capital to flow from industries in which business is slack and prices low into those in which demand is brisk and prices high.

[2] McLeod's study, as before remarked, has gone to great extremes in this direction, much to its loss of usefulness for the study of monetary problems.

business is, no doubt, carried on, but it is uncertain and questionable. Of course, in case of a borrower of means and high credit, a loan may be made not ostensibly based on goods, if no collateral is exacted; but, in reality, it will always be found that the lender believes that the borrower has property which, in the event of disaster, can be taken by due course of law as an equivalent for the loan. That is, "high credit" is only a way of describing the chance of falling back on some kind of wealth which lies in the possession of the borrower; this property is security, but it is not at once as easily realized upon as collateral. To protest a note, get judgment of a court, and execute by levying on the debtor's estate is a longer and more uncertain process than assuming possession of collateral already deposited; but, in either case, the difference is one due only to greater care as to repayment. Although the various forms of credit differ in the legal formalities to secure repayment, goods lie behind each of these forms.

Bank notes.

Promissory notes of institutions are usually the final outcome of a transfer of goods. When a bank makes a loan and issues its own notes to the borrower, it receives an obligation giving the right (properly secured by collateral, or otherwise) to receive a sum in the future, and this obligation becomes a valuable item in its resources; on the other side, the borrower gets the right to draw on demand in the form of the bank's own notes. Bank notes, based on the security of such commercial assets, are an elastic as well as a safe form of credit operations; because salable goods, in the process of getting from producer to consumer, are the final recourse over and beyond all securities — since collateral is, after all, only a title to salable property or goods.

State notes.

Promissory demand notes of governments have an entirely different character. They are usually the issues of a borrower, and not of a lender; they are evidences of debt generally not based on any goods having a marketable character; and for the goods received at the time when

the notes were issued no equivalent property is held as resources. Ordinarily, such property is obtained solely in order to be entirely consumed. The security for repayment is not of a kind on which any sums can be collected by the creditor, since the government cannot be proceeded against through the courts. Consequently, the repayment being dependent on the uncertainties of partisan politics, both the intention and the ability of the issuer to pay are clouded with doubt. The demand notes of a state may thus be changed into promises whose fulfilment has been removed into the indefinite future.

A borrower or a depositor at a bank has a demand liability, which, although different in form from bank notes, is the same in kind. The borrower, when granted a loan, is given the right to draw on demand; that is, he at once becomes a depositor. This right to draw actual money is, in ordinary large transactions and in normal times, seldom exercised; because the cash may be lost or stolen, and because the right to draw is itself good means of payment, indebtedness being conveniently cancelled by a transfer of rights to draw in the form of checks or drafts. The deposit account is, in the main, the evidence of operations more or less remotely based on goods, and checks are the forms by which claims on the deposits can be passed to others. For instance, a sale of cattle may be behind a $10,000 deposit; then by checks $5000 may be transferred to others for lumber, and $5000 for dry-goods. In essence, the credit transaction was the coinage of cattle into means of payment (represented in terms of the standard by $10,000) in a deposit account; then the value of the cattle was bartered for lumber and dry-goods. At large institutions in city communities, the exercise of credit is measured better by bank deposits than by bank notes even, better than by the mass of checks and clearing-house totals, although the latter are approximately correct. As the whole of the deposit account may not be drawn upon, the bank deposits show more accurately than the checks actually drawn the extent of the credit operation.

Checks and drafts.

Continental countries in Europe, by habit, employ the deposit and check system less than the Anglo-Saxons, but instead they make extended use of the bill of exchange. The seller draws on the buyer, and uses the bill as a means of payment to his creditor, one bill often liquidating a score of transactions. The goods which through a transfer originated the first employment of the bill are thus many times in succession used to offset the payment for other goods of equivalent values. And, even when created by banks, bills are based on the transfer of the commodity gold. The bill, when drawn for a date in the future, is thus only one form of accomplishing a credit operation. When finally presented, after its round, it is a charge against the drawee's account; but on its way it has made many payments.

Bills of exchange.

Simpler methods, without resort to the use of a credit institution, are adopted when a buyer obtains goods on account, the book entry being the evidence of a transfer of goods, carrying with it an understanding that the buyer will pay an equivalent at some date in the future. Such entries may not be followed by the drawing of bills of exchange, or by the signing of promissory notes, which could be discounted by the seller. These forms of credit, therefore, while very numerous, are not of a kind to be passed from hand to hand, and their power in exchanging other goods is *nil.* The security for repayment is in the loosest legal form; hence it is one in which great risk resides. In this respect it is more troublesome, in case of commercial failure, than are promissory notes.

Book credits.

While the above description gives the general characteristics of the commonest forms of credit,[1] it must be recalled

[1] Philippovich (*op. cit.*, pp. 244, 245) distinguishes between the following kinds of credit transactions: (1) In respect of the *person* of the debtor, credit may be public or private. (2) In respect of the *duration* of the transaction, credit may be: (*a*) short or long credit; (*b*) terminable credit, and that whose limit is not expressly stated; and (*c*) credit terminable on demand. (3) In respect of the kind of *security*, credit may be real or personal (4) In respect of the *use* made of the goods, credit may be production or consumption credit.

that they vary in many details of law and custom, which lie outside of our present study. It may be well, however, to add the distinction[1] between a credit operation in which (1) the property transferred to the borrower must be returned in the identical form loaned (*e. g.*, a horse), and (2) one which gives absolute control over the thing loaned, permitting its entire destruction, and demanding only a return in kind (*e. g.*, a return of red wheat No. 2). Ordinarily, the courts enforce the return of an equivalent value.[2]

Not infrequently[3] credit is classified as real or personal; with some mixed cases. In real credit the chance of repayment is founded on some thing given as security, having value, or ease of conversion into money; while in personal credit faith is reposed in the word of the debtor. The mixed cases cover some instances of ordinary discount, which are based partly on the personal character of the borrower, and partly on the legal claim against property given by his note. As explained above, personal credit is not, in my judgment, a legitimate business transaction;[4] only that which insures repayment of goods, by a more or less strictly drawn security, is to be regarded as legitimate. In the future, doubtless, personal credit will properly become a diminishing part of the business of large and solid institutions.

§ 5. Such being the nature, basis, functions, and forms of credit, as already developed, it is for us to consider next the important classification of credit, in regard to its effects and use, into normal[5] and abnormal

Normal credit defined.

[1] Cf. McLeod, *op. cit.*, I, pp. 147, 148. [2] See *infra*, chap. xii, § 6.

[3] Cf. P. Leroy-Beaulieu, *op. cit.*, III, pp. 356, 357.

[4] When discussing the justification of a loan in the productiveness of the industry for which it is used, Hadley (*Economics*, p. 143) raises this point when he says the creditor should "look to the investment rather than to the borrower for his security."

[5] Several years after using this classification in my lectures, I found this admirable statement of P. Leroy-Beaulieu (*op cit.*, III, p. 358): "Credit ought not to be a simple anticipatory claim on wealth still in the future and uncertain; it should be based upon a real and actual thing, — wares produced and not yet sold, wares sold and not yet paid for, even wares still in course of production, if all the

credit. Normal credit is the coinage of goods, or property, into present means of payment (in terms of the standard, *e. g.*, dollars of gold) in amount no greater than the value of the marketable goods, or property, owned by the borrower. That is, a person can get normal credit only by showing that he has the marketable wealth, or a reasonable certainty of such wealth in the future, which will fully secure the lender for the loan. By transferring to the lender the claim to his cattle or grain sold, the borrower gets in return present means of payment in the form of a deposit account at a bank; and so long as the claims held by the bank are based upon actual and salable property, the transaction is sound and normal. At time of maturity the note is paid, and the reserves of the institution are freed for other operations of the same kind. The means of payment granted to the borrower are used by him to pay for other goods, or for services in production. In short, the process, at the bottom, is an exchange of goods against goods, facilitated by the exceedingly efficient use of forms of credit provided by credit institutions. Without the aid of credit, each person (or firm) must go on producing with only the present goods which he owns, while much of his property must remain to him inert, and incapable of being used as purchasing power. Under the modern division of labor each producer needs the results of others for present operations until his goods are finished. If all credit were abolished, it would affect all operations now requiring some aid in present goods for which only future repayment would be possible.

Normal credit thus enlarges the purchasing power of a man

materials have been obtained, an enterprise not yet finished, but which has already been carried to a certain point of advancement. . . . Such is normal credit; its function is not that of commencing enterprises, but of intervening at a certain stage of their development to facilitate completion, and especially renewal."

McLeod hints not remotely at normal credit in saying: "Credit always has to be redeemed: and if this can be done the Credit has been sound. Hence Credit is never excessive, whatever its absolute amount may be, as long as it always returns into itself" (*op. cit.*, I, p. 318).

to the extent of all his bankable property; or, in other words, it sets into the circulatory movement of exchange of goods against goods more forms of property than could otherwise be put in motion. Suppose, by way of illustration, A to-day sold $10,000 of cattle on sixty days' time, and has also in hand $2000 in cash; what is his present purchasing power? Evidently, by discounting his bill or note, it is in all (less the discount) $12,000. If he could not have had credit, it would have been only $2000. The same would be true of B, who had sold flour; of C, who had sold steel; and so on through the whole industrial community. If no credit were possible, in each case the purchasing power would have been limited to the cash in hand; on the other hand, by a general resort to credit, each and all would have purchasing power to the extent of their bankable property.

Purchasing power limited only by bankable goods.

The question of importance now raised is: What is the effect of this enlarged purchasing power on prices? Or, what is the influence of normal credit on prices? A's cattle have been coined into means of payment expressed in dollars; and if it is directed to the purchase of B's flour (which has also provided to B means of payment expressed in terms of the standard money), there is a demand for B's flour exactly counterbalancing the demand of B for A's cattle (supposing B to have that demand). Enlarge the operations to include C, D, and all others; then the transactions will balance all around; and the phenomena will become simply an exchange against each other, of a greater number than before of goods at relative values dependent on the reciprocal demand and supply for each commodity. A general increase of purchasing power, arising from normal credit, acts upon prices in no other way than would an increased production of all goods. This is the case where general supply is identical with general demand;[1] an increase of supply is, *ipso facto*, an increase of

Normal credit a case of general supply and general demand.

[1] "Let us suppose a *régime* of barter: under such circumstances Supply would consist in the commodities offered in exchange for other commodities. In what

demand. If an increased amount of goods come forward to be exchanged, we may have the phenomena of changes in relative values, and so in relative prices — accordingly as some goods as compared with others are unequally affected by relative demand; but it does not at all follow thereby that there will be any change in the prices of the general mass of goods relatively to gold, that is, a change in the general level of prices (unless there comes in with the supposed increase some improvement in the arts which might lower the price of each unit of product). And the same would be true, also, of an increased activity of exchanges brought about by normal credit. Let m represent all the goods actually exchanged only by means of money, and let x represent goods exchangeable by credit. Then the total mass of $m + x$ would be exchanged against each other with practically the same results, so far as general prices go, as m alone would have been. The end would be the same. Credit has been the evolution of a refined system of barter, enabling goods to be exchanged against goods. When looked at generally, all bankable goods form the supply, and at the same time the demand. In the last thirty years, in fact, we have seen an enormous enlargement of the output of goods, and with it has come a corresponding expansion of bank deposits, but yet the prices of each unit (ton, bushel, etc.) of goods are, in general, less today than at the beginning of this period.

would Demand in such a case consist? We can only give the same reply: in the commodities offered in exchange for other commodities. In other words, under the simplest and most elementary form of exchange, Demand and Supply, as general phenomena, as aggregates, could not be discriminated. Each commodity would be in turn Supply and Demand — Supply in reference to the person seeking to obtain it, Demand in reference to the person who used it as the means of obtaining something else" (p. 24).

"A certain number of people, A, B, C, D, E, F, etc., are engaged in industrial occupations — A produces for B, C, D, E, F; B for A, C, D, E, F; C for A, B, D, E, F, and so on. . . . The producers are also consumers; and if, on the whole, less is produced, there would, on the whole, be fewer commodities to be exchanged. But why should this affect the proportions in which they are exchanged? or why should it affect the relations between commodities in general and money?" (p. 32.) Cairnes, Leading Principles of Political Economy, chap. ii.

But, looking at each transaction separately, a temporary aberration in market prices may often be seen. The appearance of the new demand may not be simultaneous in all industries; in those in which it appears first there is a new purchasing power relatively to goods in other industries. If, for example, A's $12,000 is all offered for B's flour, a rise in the market price of flour may result, without in any way changing the normal expenses of production of flour; later, competition among millers may appear, and the market price will fall. Likewise, if C disclosed a new demand for A's cattle, the market price of cattle, as well as that of flour, may rise; but the supply of cattle would, in time, be affected by competition, and the price of each animal of the larger total in existence would tend to fall toward the normal price. Thus by credit operations — which have the same general effect as an increased product — there may be perturbations of temporary, or market, prices up and down; but normal prices will be resumed, if any competition exists, under the working of a legitimate demand and supply. It must be admitted, theoretically, that, as normal credit may produce temporary fluctuations of prices, it may produce possible changes in the value of the standard; but these changes will run over so short a time, will be so slight and so numerous, that they will largely offset each other and produce no appreciable results on the general level of prices.

Temporary perturbations of price.

But the increase of purchasing power caused by normal credit has led many to believe it would raise general prices, just as an increase of money is supposed to increase prices. In this instance some confusion may be avoided by pointing out that, although the titles to the property exchanged by means of credit are expressed in dollars, the credit operation is not — and, in the nature of things, cannot be — the same as an offer of actual cash. Many wrongly suppose that the additional purchasing power created by credit, and expressed in terms of money, is an actual offer of money. A purchase of flour by a check for $12,000 seems, on its face, to be paying with a claim

Normal credit not equivalent to money.

on $12,000 of cash, to be got on demand at some bank. But a bank with $40,000,000 of demand liabilities, and having the highest standing, may not have more than $10,000,000 of cash in its vaults. That is, if every one having a credit obligation on demand were to ask for lawful money, instead of going on normally to get from surplus goods to other goods desired as economic satisfactions, no one could succeed; and there would result a stoppage of credit transactions and a suspension of payments. As before remarked, there never could, nor should, be kept on hand an amount of the common denominator equal to the sum of all credit transactions at any one time; nor is there really any such intention in the minds of the business community.[1] Credit transactions are, in fact, except to a very limited amount, not liquidated by actual money. Hence it does not follow that normal credit could act in the same way as an offer of an equivalent amount of standard money. That it increases the media of exchange, there is no doubt; and, of course, those who really believe that an increase of the media of exchange directly raises prices, may see the direct effect of normal credit on prices. But prices, as I think we shall find out hereafter, must be studied in relation to the standard and not in relation to the media of exchange. Consequently, normal credit, not being in reality an offer of standard money, cannot change the value of the standard (and thus change prices)

[1] McLeod (*op. cit.*, I, p. 316) says: "Because a Bill, or Note, is an Obligation to pay money, many uninformed writers suppose that they must always be paid in Money or Bank Notes;" and he goes on to show that credit bears no fixed relation to the money in a country.

To repeat what has been said before, the real end and purpose of production and exchange is not to get the common denominator, but to secure those goods which give us economic satisfaction. Hence only that amount of the standard is kept on hand (that is, only that part of a country's wealth is invested in the machinery of exchange and money) which will meet the special demand for the actual standard from time to time. How much this will be will depend on experience, settled conditions, intelligence of business men, character of the community, and the conditions of trade. If there is no fright or panic, little will be needed. The demand for actual money in a crisis is a special case for later discussion.

by an alteration in the demand of the community for gold. Some additional demand may arise because increased bank liabilities require an increase of reserves; but of that later.

Change of demand, not change of credit, affects prices

It may be said, however, by men of affairs: "If A is not granted discounts on the wheat which he is buying in Kansas, he must stop buying and shipping wheat; and, consequently, the price of wheat will decline." This is intended to show that credit directly affects prices, as much as the offer of actual money. This case, however, is one of a change in special demand and supply; it means only that, if discounts on a single article like wheat are refused, less property of other kinds, expressed in terms of money, is being, through banks, offered for wheat; it means only that wheat is changing in price relatively to other goods, not that prices in general are falling. Such a change in the price of a special article could be brought about by a readjustment of demand, even if credit or money did not form any part of the means by which demand expresses itself.

Normal credit does not raise general prices.

Normal credit cannot raise prices in general. Goods, exchanging against each other with the tags of prices attached to them, do not act differently from those without such tags. In the case of the appearance of new goods, furnishing a new demand for other goods, — all being expressed in terms of money, — it may appear at first as if the other goods must rise in price under increasing demand. That depends on the adjustability of supply. Price is as much influenced through the supply as through the demand. In a case of particular supply and demand, such as this, a new and legitimate demand will increase the prices of other goods, and keep them on a higher level, only under the supposition that the increased supply is not immediately forthcoming. But in many manufacturing industries the facilities for increasing the supply, as soon as a possible demand is perceived, are such as to bring about an instant response: more men are engaged, more material is worked up, and needed adjustments of space and new machinery are made

in an incredibly short time. In fact, potential supply is sufficient in many cases to keep down the price, even under an increasing demand. More than this, under a demand for an increased supply, it is quite likely that the expenses for producing each unit of goods may be lowered. That is, an increased demand, attributable to normal credit, would not in many instances cause a rise of prices in other goods. In short, such an effect of normal credit, shown in higher prices, could be maintained, only in the special industries in which the supply is controlled, by some sort of monopoly conditions. Possibly the price of steel rails, to illustrate, might for a few years be kept above normal prices, because competition on a considerable scale, and a sufficiently large capacity in the mills to meet an exceptionally well-sustained demand, might not be in existence. The general proposition, then, remains clear: in some industries a demand arising only from the presence of an increased quantity of exchangeable goods will not raise general prices; in some it may raise prices for a time, until supply can overtake demand; but it cannot spread to all industries, nor cause a general rise of all prices.

The instance, however, where the same goods may have been discounted many times, may possibly raise some difficulties. Suppose that x goods have been the occasion of separate discounts to ten persons. The x goods may have been sold on time by number 1 to number 2, and number 1 may have had a bill drawn on number 2 discounted. Then number 2 may have again sold the same x goods to number 3, and may have obtained another discount based on the transaction. And so on to the last person, number 10, — when ten discounts may have been made, amounting in all to ten times the value of the x goods. Is this operation an example of normal credit?

On analyzing the transactions there can be no shadow of doubt that goods to the value of the loans actually underlay each discount; a cause of misunderstanding may arise only in deciding which of two sets of goods should be

regarded as the ultimate security for each transfer. If number 10 failed in business, and did not have the x goods with which to repay number 9, then resort must be had to other goods, or property, owned by number 10; if number 10 had no such goods, or property, then number 9 loses entirely the amount of his loan. But number 9 is still holden to number 8; and the other goods, or property, of number 9 must be used to pay number 8. And so on, back to the beginning. If the one set of goods, x, disappeared out of the series of exchanges, another set of commodities must have been introduced from another source to make good the lack; but goods, either from one source or another, formed the basis of the credit operation.

Now, how as to the effect of such an exercise of credit upon general prices. If the same x goods have been discounted ten times, then a present means of payment, or purchasing power, to an amount ten times greater than the market value of the x goods has been created. If so, would this not seem to be a case of abnormal rather than normal credit? Yet in each discount, so far as the bank or lender could know from evidences such as bills of lading, there was behind each credit operation a basis of goods. If purchasing power, however, to the amount of ten times the value of the x goods has been provided, would not prices be affected in that proportion? In the end, I think they would not.

It is to be remembered that, in the ordinary world of business, such a case ought not to be regarded as an isolated one; if x goods are discounted ten times over, and if the consequent purchasing power has been offered ten times as a demand for other goods, we must believe that what is true of x is also true of y, and of a, b . . . z. Hence, if (on a second loan) x_1 is discounted and its purchasing power is offered for y_1, similarly discounted, the meeting of the two sets of goods will prevent any change of price, due to an excess of demand over supply; for y_1 is demand for x_1, as much as it is supply looked at from an opposite point of view. Likewise x_2 may be offered for y_2, and so on; or, in the multiplicity of actual

exchange, any of $x_1, x_2, \ldots x_{10}$ may be offered against any of $a_{1 \ldots 10}, b_{1 \ldots 10}, \ldots z_{1 \ldots 10}$; and *vice versa*. If there is a *bona fide* basis of goods behind each discount, and if the habit of discounting on the same goods several times is general, there would be a general supply, fairly equal to the general demand, and a change in the general price level would not take place. The element of safety throughout the series of operations, of course, depends upon the actuality of the value in each body of goods discounted. The danger is not so much in the number of times the goods form a basis of credit, but in the possibility of granting the loan, in any case, without the foundation of value beneath it. Even if this last happened, in any one instance, the loss would fall upon, and be met by, only one in the series of exchangers; and the others in the group would be unhurt, if the one creditor made good out of his other holdings the default of this one debtor.

To the extent that such a frequent discounting on x had not spread to $a, b \ldots z$, then, of course, there would result a change in the prices of x relatively to $a, b \ldots z$; since a greater demand came from x for other goods, as compared with the demand from other goods for x. How long this disturbance of relative prices would continue, must depend almost wholly, as before explained, upon the time required in the productive processes to add to the supply, and to reduce the price to the normal level.

A convincing point in the inquiry as to the action of normal credit on prices is to be found in a reference to the effect of such credit on normal expenses of production. Does credit change any of the elements entering into the normal expenses of production of any article? If it does not, how can it be said to have any distinct result on general prices? Goods already produced cannot be influenced as to their expenses of production by new means of exchanging them; if it influences price at all in that way, it would be by reducing price through greater efficiency of exchange. If it does not concern the commodity side of the

Normal credit has no effect on normal prices.

price ratio, does it touch the money side? Are normal prices of goods acted upon by credit through operations which raise or lower the value of gold? It can affect the value of gold only by touching the demand for it; but in so far as normal credit can be said to change the demand for gold, it works to lessen the demand by furnishing another means of exchanging goods without having resort to the article chosen as the common denominator, or standard.

Does credit affect the value of gold?

Theoretically, the gradual introduction of credit as a medium of exchange, until its amount has become very large, has enabled a work of exchange to be done which otherwise must have fallen upon some other form of money. It is not uncommon to reason that if this work were to fall, for instance, on gold, it would enormously increase the demand for gold, and so raise its value; *e converso*, it is argued, the existence of credit has taken away a large demand from gold, lowered its value, and, as a consequence, raised the general price level. This reasoning is sound in the main, but not altogether appropriate: no contention can be based on a contrast between the presence and absence of credit. It is as much a part of the gradual evolution of modern industry as division of labor; without either, existing operations would be impossible. To-day the demand for gold is a fact based upon the existing customs and methods of society; and one of them has long been the use of credit. To reason on what would happen if it were absent would be like reasoning on a change in human nature, or on a supposition that the race has gone back in its industrial development to a point where primitive conditions only could prevail. This harking back to an impossible point gives us no *πού στῶ* on which to reason.

To see all that there is in the question raised, we need only admit at once that anything which lessens the demand for the standard, or gold, will *pro tanto* lower its value, and thus indirectly raise prices; since a lowering of the value of the standard is equivalent to a rise in the goods side of the price ratio, or a rise of prices in general. If the gradual introduc-

tion of credit, therefore, has lowered the value of gold, it has affected prices only through a change in the value of the standard in its relation to goods, and not through an increase in the quantity of the media of exchange relatively to the money work to be done. At the best, it could be said that credit, by its enlarged use, has saved gold from being more and more needed as a medium to be passed from hand to hand in the actual exchange of goods; but there is no reason to suppose that human intelligence would not have devised something else to serve its purpose if it had not utilized credit.

Credit has relieved gold of work.

Supposing that normal credit has saved gold from bearing a burden of demand which would otherwise have fallen upon it, the more correct way of stating the outcome would be thus: it has obviated a rise in the value of gold which would otherwise have resulted from the expansion of modern exchanges. But even this statement may, by itself, give a wrong impression. Gold has been generally adopted as a standard[1] because its supply has become so great that changes in monetary demand or supply in any short period of years produce very slight effects upon its world value. The great production of gold has outstripped the demand, or at least kept pace with the newly created demands arising from its adoption as a standard in countries formerly using silver; and the contemporary growth of credit has had the effect of making this supply go farther than it otherwise would. What would have happened without it, it would be absurd to speculate. Men being what they are, they will always scheme and devise methods for diminishing the use, as an actual medium of exchange, of a valuable standard which may be easily lost in passing from hand to hand.

In a very practical sense, then, in the periods within which the enormous supply of gold prevents perceptible changes in its world value so far as they may be due to changes in demand, it may be accepted that normal credit does not, in its fullest exercise, directly increase the normal prices of goods

[1] Cf. chap. iii, § 3, and chap. ix, § 3.

nor does it raise the general price level. It can do this only through affecting the world value of gold, and thus reaching prices. On the other hand, there is no logical and substantial reason for supposing that normal credit has an influence on general prices through increasing the demand for goods by a so-called increase in purchasing power, or by the increase of the medium of exchange; since, in normal credit, be it remembered, a general increase of demand *ipso tanto* carries with it an increase of general supply. In brief, although fluctuations in market price may be produced by irregular appearances of normal credit in some, and not in all, industries, normal credit can have no general effect on values and prices, after a time long enough to permit temporary fluctuations of price to spend their force.

Normal credit has little practical effect on gold.

§ 6. The effects of credit on prices are not confined to the workings of normal credit. Different results flow from abnormal credit, which may be defined as the coinage of goods, or property, into present means of payment (expressed in dollars or other units) in an amount either unknowingly or knowingly *greater* than the value of the marketable goods, or property, actually owned by the borrower. At once it will be asked how an operation not based on evident requirements can ever take place. This question becomes still more importunate when it is recalled that the lender, who coins property into present means of payment, does so at his own risk, knowing full well, if he is mistaken as to the value of the collateral, or as to the salability of the goods behind the paper, that he himself must meet the loss. If such be the facts, how does it happen that banks, or any lenders, could ever be led to create abnormal credit? Of course, the answer is that it never could exist, if the whole truth as to the present and future value of goods were always known, or if all men were perfectly reliable. Indeed, abnormal credit may arise either unintentionally or intentionally. In the first place, with the best of purposes, sanguine human nature may often see the possibility of wealth so vividly as to

Abnormal credit defined.

act as if it really existed; a man may believe that his purchasing power is greater than it actually is, and he may be able to convince a lender that he is right. More than this, the wisest of men may be mistaken in some of their business judgments; they may meet with unexpected reverses and accidents; or by changes in demand over which they had no control goods which once had a good market may become unsalable. On the other hand, by conscious deception, paper which was supposed to be supported by satisfactory goods may become worthless by fraud. Thus knowingly or unknowingly — more often the latter — credit may have been granted which, in fact, was not based on salable goods worth enough to meet the loan at maturity. Abnormal credit, then, is built upon error, delusion, or fraud; and sooner or later its falsity is sure to be discovered. Abnormal credit is speculative; and illegitimate speculation *e converso* may be defined as the use of abnormal credit.

Why abnormal credit exists.

What is the effect of abnormal credit on prices? How does it differ, as regards its influence on prices, from normal credit? On the face of things, abnormal is not distinguishable from normal credit; the loan has been granted on the supposition that good and sufficient property is behind it, even though there may be — either on the part of the borrower or lender — a deception somewhere. The business may seem to be sound when in fact it is rotten; or an unperceived shift of demand may be going on which will wipe out the value of the goods intended to meet the loan at maturity. More often, the optimistic temperament of men, or the spirit of adventure, may lead them to go beyond their means and over-trade. Men who have received loans may not make such use of what they receive that they are able to repay when forced to take up their paper. This is a commonplace of business experience, with which every one is familiar; in fact, credit men and banks are daily trying to distinguish between normal and abnormal credit, the one being sound, the other unsound; and yet externally they act alike.

Similarity of normal and abnormal credit.

The offer of credit, moreover, of any kind — whether normal or abnormal — appears in terms of money, and on its face is, in either form, purchasing power. In both cases the machinery set in motion is the same, and the immediate effect of any special demand upon prices is the same; the difference will appear in the final effects upon the general level of prices. Normal credit extends a person's possible purchasing power to the full amount of his bankable goods; but abnormal credit goes farther than this: it gives the borrower a purchasing power often — when the delusion is widespread — enormously beyond the borrower's actual means. In the former case changes in special demand offset each other, or are met by corresponding supplies, and do not affect perceptibly the prices in many industries except for short periods; in the latter case what appears at first as only special demand is, by virtue of its general character, capable of extension over all goods, and ends by modifying the general level of prices.

Abnormal credit is purchasing power.

If abnormal credit gives — as it must — purchasing power, expressed nominally in terms of gold, it has the initial effect of all demand when directed toward special goods, and raises prices. This would be true whether the evidence of the credit transaction emerged in the form of a book entry, or in any other way. The price of other goods tends to rise under the new demand; the particular supply of other goods at once responds in many industries, certainly in those in which no monopoly conditions exist. Even though the new demand in this case is false, the supply comes forward as if, eventually, the goods behind the false demand, or their equivalent, could be had in payment. The supply is increased out of all proportion to a true demand; until the actual state of affairs is disclosed, the real maladjustment of supply to demand is unperceived. When the actual goods (or their value) which are supposed to create the demand are in any case exacted, and the falsity of the situation is uncovered, then supply is found to be far in excess of the demand. That is, the supply has become

Abnormal credit stimulates supply.

abnormal relatively to any true demand based upon goods. When the delusion is pricked by any untoward event, the supposed demand collapses; and the prices at which the supply is held fall suddenly and heavily.

The peculiarity in the operations of abnormal credit is that this over-trading can go on in all industries, with the spread of a generally sanguine attitude; the false demand appears everywhere; or, in other words, the potentially false demand is everywhere present. The fictitious purchasing power, as already said, seems to be an offer of money. In reality, it is not an offer of money; indeed it is not even an offer of salable goods. Yet so long as the bubble was not pricked, all seemed fair on the outside. Prices went up all round. It was not merely a change in relative values due to a readjustment of special demand, as in the case of normal credit; it was a general, although speculative, rise of almost all prices.

Abnormal credit may be general.

From the point of view of general demand and general supply, the enlarged demand due to abnormal credit combines both the real and a false demand; and general supply is increased to meet the combined demand. Normally, general supply of goods ought to be identical with the general demand, taken as a whole; and while the delusion lasts this appears to be true. The goods offered serve as a total demand at the prices tendered for the supply; and the goods forming the supply serve as a total supply at the prices exacted. Then comes the pricking of the bubble. The false demand disappears. The nominal value of the general supply is now vastly greater than the value of the shrunken general demand; and the high general level of prices, kept up by a false demand, now unsupported, falls. The outcome is that in many industries a vast mass of goods exists in supply out of all proportion to a legitimate demand based upon salable goods. Then liquidation is forced at great sacrifices. Obligations have been entered into for sums of money based upon the high level of prices; while goods, by which liquidation

Abnormal credit in relation to general demand and general supply of goods.

must always be ultimately effected, have fallen in price, and the proceeds from their sale do not cover the amount of the obligations. As contrasted with normal credit, abnormal credit can cause practically a general rise in the level of prices, or at least a rise in the average of prices, and this high level can be maintained so long as general over-trading goes on without being discovered; after the discovery comes, the prices fall even below the normal level, because of the wild rush to sell goods for liquidation. That is, in the false adjustment of demand and supply of goods, a general rise or fall of prices has resulted from influences affecting goods in general, and not from those which have originated with the standard in which all prices are expressed.

Why general supply in abnormal credit permits a rise of prices.

In normal credit the increase of supply comes forward in answer to an enlarged but legitimate demand, based on goods; and the supply being in particular cases adjusted to the true demand, the general supply and the general demand would be identical; so that there would be no rise in the general level of prices. This result follows from the fact that goods would be produced in the proportions actually needed by the community. It is, however, not so with abnormal credit; in most, if not all, industries, there exists a false demand, not based on goods, which leads to the building up of a supply which is not adjusted to the true demand. Consequently, the general supply — looking at the phenomena as a whole — is increased in such a way that it does not become identical with general demand. That equilibrium, therefore, does not exist which prevents a general rise of prices.

Normal may change to abnormal credit.

It should also be observed that what was once normal credit may, by force of events out of the control of borrower or lender, gradually or even suddenly be changed into abnormal credit. At the time of granting credit, the security exacted for repayment may be ample; but before the loan matures, it is conceivable that the value of the securities, or the goods on which the securities are based, may, by changes in the industrial situation,

shrink so much as to leave the lender little or no protection. For instance, securities are valued largely according to the certainty and amount of dividends, or interest, paid on them; and a commercial reverse which would cut off earnings, or lower dividends, would cause a serious fall in the capitalized value of the securities, and leave the loans for which they had been a protection uncovered. That is, a normal credit becomes by such events partly abnormal credit. In such cases it might possibly be supposed that the disturbance and loss would fall upon the lender, or bank, that had already granted the normal credit; that in this way the demand originally created would be unaffected; and that the influence on keeping up prices would remain in force. Far from it. The lender has various means of transferring the responsibility to the borrower; in cases of demand loans, they can be called in at once, if the collateral proves insufficient; if the loan is a time loan supported by securities, additional protection can be called for, if shrinkage occurs. In such ways the borrower, as a rule, will be obliged to carry the burden of his own creation; he must meet the difficulty by turning other goods, or property, into means of payment, or else stop payment altogether. This will limit his demand, and force him to contract his offers of purchasing power. Had a bank been taking paper without much intelligent discrimination, and, when it tried to force responsibility home on its borrowers, happened to find them quite generally unable to respond to its demands, then the bank itself would be obliged to suspend; it would be punished for its bad judgment; but the fictitious purchasing power which it had fostered would be eliminated, and, the false demand being thus withdrawn, prices in general would fall.

Changes of price not due to money.

Although the general rise of market prices caused by abnormal credit is speculative and based on a delusion, yet while it lasts it is a fact; and the rise of price, continuing so long as the over-trading exists, does for a time produce a new valuation of goods relatively to the money standard. The rise of prices is only a state-

ment of the fall in the value of the common denominator (or gold); but it is plain that we have here a change in the price relation between goods and gold not due to operations directly affecting the demand or supply of gold, that is, to those affecting the gold side of the price ratio.[1] It is a general change of prices not attributable to the abundance or scarcity of the money material (*e. g.*, gold) used as a standard. And if a remedy were to be sought to prevent such movements of price, it would be absurd to begin with the money side of the ratio. Changes of price arising from illegitimate speculation must, of course, be dealt with wholly by influences regulating, or restrictive of, abnormal credit and overtrading. This, however, is a study of human nature working under great tension in the world of trade and commerce, which is not within our present purpose.

Case of ill-adjusted production.

Whenever, under normal credit, there occurs a mistaken adjustment of production to effective demand, as when goods are not wanted in the proportions produced, the outcome will be much the same as under abnormal credit. The demand is based on a delusion, or is non-existent; so that an offer of purchasing power based on goods not in demand becomes powerless. Even if, to superficial observation, goods seem to be behind the transaction, it will be found out later that the reality was not as the seeming; since the goods did not have the salability supposed. Hence the collapse of the purchasing power, and the consequent drop in prices of those goods toward which the demand had been directed.

§ 7. The operations of abnormal credit[2] — with only few exceptions — provide the materials for a commercial crisis.

[1] McLeod's statements about gold and credit do not seem true: "This Credit produces exactly the same effects: and affects Prices exactly as so much Gold: Prices are estimated by the aggregate of Money and Credit" (I, p. 335). "All Credits payable in Gold — whether Bank Notes, Banking Credits, Bills of Exchange, or any others — have identically the same effects on the Value of Gold and on Prices as an equal quantity of Gold itself" (II, p. 733).

[2] When McLeod (*op. cit*, I, p. 335) says, "It is through the excessive creation of this species of Property that all Commercial Crises are brought about: and

If many traders become optimistic, and all are over-trading, prices and securities rise, until at the psychological hour the circuit is broken at its weakest link. Some event, of relatively small importance, brings down one person or institution; and, when liquidation is attempted, it is found that promises have been made quite beyond the amount of resources, that credit obligations existed greater than the goods actually owned — that is, that the liabilities far exceed the resources. Then others find that paper due them is not collectable, that is, is not based on salable property to a sufficient amount; more persons fail, and finally a general collapse comes. In proportion to the extent of the over-trading is the crisis more severe and ruinous. The effect is exaggerated by a rush to convert all forms of goods and property into the actual legal standard, because maturing obligations must be met (supposedly) by actual cash.[1] Of course, as was said before, not all goods can be converted into cash at the same time, any more, to use an old illustration, than all the people of a country could ride on the railways at the same hour; but the panic-stricken dealer throws over goods and securities, and forces prices down to an extreme point by selling when no one is anxious to buy. It is in such circumstances as these, we shall find, that means of payment are created, based again on goods such as clearing-house certificates; or, in England, by obtaining new reserves of notes based on consols by a suspension of the Bank Act. In short, a panic demonstrates that credit transactions are really based on goods; that liquidation never can be forced in money; and that the invariable remedy is some method of tiding over the emergency by creating means of payment based on goods (not specie) which will be acceptable by lenders from borrowers,[2] such, for example, as clearing-house certificates.

Crises.

through the mismanagement of these, and bad Banking legislation, that Commercial Crises develope into Monetary Panics," he seems to describe fairly well abnormal credit.

[1] On this point, however, see chap. xiv, § 3.

[2] In speaking of the after effects of a panic, Nicholson (*op. cit.*, p. 74) describes what is really the return to normal credit: "As soon, however, as the

Crises a return to normal credit.

The fall of prices due to a commercial crisis, and the so-called subtraction of credit, is, then, due in most cases to a return from abnormal to normal credit; it is not an annihilation of credit, but a forsaking of credit not resting upon actual salable goods.

§ 8. The full discussion of the theory of prices is, of course, necessary to a final conclusion as to the effect of credit on prices; but the present analysis of credit operations allows the influence of credit, to some extent at least, to be seen by itself.

Credit and prices.

The problem may be clearly presented by the accompanying diagram. Sections (1) and (2) together represent all the wealth of the community; while (3) arises from dealings in, or exchanges of, articles in (1) and (2). Section (3) is no part of the total wealth of the public;[1]

(1) General Wealth in Goods	(2) Gold and Silver	(3) Forms of Credit

it is only a set of devices created in the later evolution of industrial customs by which (1) and (2) can be efficiently set in motion and exchanged.

It is evident that (2) plus a part of (1) together form the total possible purchasing power of the country, going and coming interchangeably. The reason that not all of (1) can

contraction of credit sets in, the bankers make wry faces over credit documents not of the first class, and there is a sudden diminution in the representative money and a great fall of prices." The fall of prices, however, is certainly not in this case due to a reduction in the quantity of the media of exchange other than abnormal credit.

[1] This, of course, is at variance with McLeod, who makes rights to receive wealth a part of wealth. This is due to different conceptions as to the fundamentals of economics, and as to what wealth means. As a legal right does not itself yield an economic satisfaction, and since the exchange of the right is really the exchange of goods covered by the right, a single piece of goods behind a credit transaction should not be counted twice, once in (1) and again in (2), as a part of the total wealth of a country.

be included in general purchasing power is that some goods, like fixed capital, land, and the like, may not be salable, and therefore not bankable property. But (3) is the machinery by which a very large part of (1) in addition to (2) is converted into general purchasing power. That is, this explanation shows how credit has, in general, increased the purchasing power of the community, in the sense that it can use as means of payment not only (2) but also a part of (1). It is true that all of (3) is drawn in terms of (2), or the standard, but (3) does not increase the amount of economic satisfaction *per se*.

The difficult question as to prices is the relation of (2), or money, to (1), or goods; and, also, there are serious problems in discussing the influence attributed to (3) on the prices of articles in (1); or, put in another way, what is the effect produced on the value of (1), goods, relatively to (2), or money, by the existence of (3), or credit? As yet, no discussion has been given of the general theory of prices, or the values of goods (1) relatively to money (2). The present study is concerned with the effects of (3) on the prices of (1), so far as they could be touched upon without anticipating the general theory of prices.

It has been found that modern credit is a means of coining property into means of payment, thereby enabling that property to be exchanged against other property without the intervention of money as a medium of exchange (except a part held as reserves for unexpected emergencies). While serving as a medium of exchange, credit in no way dispenses with money as a standard, or common denominator. In fact, the process of evaluation of goods in the standard metal, or price-making, must necessarily be antecedent to the credit operation, which follows the agreement on price. But the phenomenal development of credit only emphasizes the truth that the stability of the standard, in which prices are expressed, is beyond all things most essential; since all the mass of complex transactions, cross-exchanges, contracts, and credits are drawn in terms of that standard; and a

Credit and the standard.

change introduced in the value of the standard (by causes affecting itself only) runs through all the engagements of the whole business world, and becomes destructive to the property relations of every citizen of the state.

Credit and the demand for gold.

It has been seen that purchasing power in the form of credit cannot affect the price ratio by any influence on gold itself, except through an alteration in the demand for gold. Instead of increasing the demand for gold, the general development of credit lessens the demand for gold; hence, instead of making gold dearer, it works in the end to make gold less valuable — or at least by doing work for it prevents it from becoming more valuable. An increasing mass of credit transactions does not carry with it anything like a proportional increase in demand for gold, unless we suppose that it calls for an increased use of standard money to be employed as a medium of exchange. Such a supposition is contrary to the history of the race; it assumes that with increasing transactions the permanent business habits of the people as to exchanging goods will revert to those of primitive days. How far increasing credit transactions demand greater reserves, and thus increase the demand for gold, will be taken up later;[1] but it may be said here by way of anticipation that the effect of an expanding use of credit in demanding more specie reserves has had a very slight effect upon the world value of gold and, through it, upon prices.

[1] Chap. v, § 7, and chap. x, § 9.

CHAPTER V

DEPOSIT CURRENCY

If the advance of capital only is considered, as made to those who are ready to employ it in judicious and productive undertakings, it is evident there need be no other limit to the total amount of advances than what the means of the lender, and his prudence in the selection of borrowers, may impose. — *Bullion Report* (1810), p. 50.

C. F. DUNBAR, *Theory and History of Banking* (1891). — IBID., *Deposits as Currency*, Quar. Jour. Econ., July, 1887. — *Report of Monetary Commission* (1898), §§ 90–96.

§ 1. IN the general exposition of credit it was seen that institutions of credit, owning and collecting capital which was loaned on short-time paper, had most to do with coining property into means of payment for the community, and that this was a service of large importance to the borrower. In this chapter we have to do with that particular form of credit operations arising out of the deposit and discount function of commercial banks. Here, we have, in fact, a concrete application of the foregoing principles of credit. A commercial bank creates demand liabilities; while savings banks, mortgage companies, agricultural banks, and the like — apart from questions as to reserves — differ from the former in lending on long-time paper. It is because these demand liabilities of modern banks perform a currency function that they are necessarily included in a treatment of the principles of money. In them is found the final progress in that evolution of monetary machinery which has been going on for centuries, under the pressure of a desire to exchange goods without transferring the valuable standard itself as a medium of exchange.

Currency function of demand deposits.

The deposit of money with the earliest banks for convenience and safe-keeping naturally led to the establishment of

methods by which the ownership of these deposits could be transferred without the actual removal of the money itself. In modern banks this transfer is promptly and safely made by the use of checks or drafts, which are orders drawn by the depositor upon the bank to credit a certain sum to the person named.

Deposits transferred by checks.

Individuals or firms — to the largest extent among Anglo-Saxons — deposit with banks the balances, large or small, either those which they expect to draw on from day to day, or those for which they are seeking a permanent investment. Small sums left by many depositors form vast accumulations, capable of being used in important productive operations on a great scale. In the main these deposits pass thus from the hands of the small or inexperienced owners into the hands of the more active and generally the more efficient members of society. Banks begin with the subscribed capital of their own shareholders, but they succeed only by obtaining deposits of capital from others.

§ 2. Clearly enough, banks cannot make something out of nothing; they cannot create wealth, or money, out of an intangible thing. The operations of legitimate banking are always ultimately based on salable goods, or property; if they are not so based, the operations cease to be legitimate and are purely speculative. When banks speculate, they have left their own clearly marked domain. Their legitimate banking profit arises almost wholly from discounts. The greater the loan item resulting from discounts, the greater the sum yielding profit, or interest. They can, of course, loan their own capital, and in addition whatever amounts are left with them by customers on deposit accounts, less the reserves in cash — which earn nothing — necessarily held against demand liabilities. Their own property, or that of others left with them, forms the basis of the credit operations of legitimate banking. There is an error lurking in the suggestion, sometimes made, that a bank "coins its credit," meaning thereby that the institution makes

Banks do not coin credit.

use of an intangible confidence residing in the bank. On analysis it will be found that there is, and must always be, goods, or property, behind every proper credit transaction which is not purely speculative. In winning the confidence of the public by safe and conservative management, the bank which thus obtains larger deposits is less likely to be called upon for cash by suspicious customers; that is, more property of the public is left with it which can be loaned. The larger the deposits, the larger its profits. There is nothing mysterious in banking operations; there is no miraculous coining of anything out of nothing.

Reserves.

The proportion of reserves to demand liabilities is determined only by experience; there is no definite percentage which can be laid down as necessary. No bank needs cash equal to all its deposits, because all depositors do not wish cash for their claims at the same time; or, because of business habits, they may not use cash at all, preferring to pay by checks. Consequently, a bank knows by experience that twenty, or twenty-five, or thirty, or fifty per cent of its demand liabilities is a reserve sufficient to meet all demands for actual cash. The residue of deposits can be safely loaned on good short-time commercial paper, based on mercantile transactions. As was said, banks make their profits mainly in discounting, — that is, by buying a right (properly secured) to receive money in the future, and by giving for it a right to draw on demand a sum less than the loan by the amount of the bank discount. So far as its profits go, the particular form of a right to draw on demand is unimportant to the bank; because the profit depends on the discount operation antecedent to the creation of the particular demand obligation. Whether the demand right is granted by the bank in the form of its own notes which are promises to pay on demand, or whether in the form of a deposit account (on which checks can be drawn at any time), does not affect the amount of profit which the bank earns by discounting. The choice between receiving notes or a deposit rests wholly with the

Banking profits.

customers of the bank. Hence we see the reason for the well-established fact that the expansion of notes relatively to deposits, or of deposits relatively to notes, in our banking history is independent of the control of the banks, and is determined by the business habits and customs of the public.

§ 3. Consequently banks must accommodate themselves to the needs of their customers, or not do business at all. If the transactions take place in rural districts where the sums are usually small, or, if actual cash is needed by borrowers, *e. g.*, in buying wheat or wool, or in payment of wages in factories, where banks are not close by, banks may find it necessary to issue their demand rights in the form of notes which will pass from hand to hand as money. But identically the same service may be rendered by banks in city districts without issuing any notes. By granting borrowers the right to draw on a deposit account on demand in places where transactions are large, and where resort to banks is familiar, and where the community is accustomed to transfers by checks and drafts, the banks do not need notes for local transactions — although sometimes they issue them to be used by correspondents in rural districts. Looking at the credit operations from the point of view of the banks, their profit can be equally gained either by the use of deposits or of notes; and they can expand their operations to any extent warranted by actual transactions in goods quite as efficiently by deposits as by notes. The deposits, therefore, create a currency equally efficient with — and in some respects more efficient than — that of bank notes. In using the word "currency," it should be observed that, in popular usage, it means practically the same thing which we have carefully defined as a medium of exchange; and if this meaning be kept in mind, and distinguished from that of a common denominator, it will let in a flood of light on the question of prices.

Identity of issue and deposit function.

The true office of deposit currency was accurately described by Hamilton as early as 1790: "Every loan which a bank

makes, is, in its first shape, a credit given to the borrower on its books, the amount of which it stands ready to pay, either in its own notes, or in gold or silver, at his option. But, in a great number of cases, no actual payment is made in either. The borrower frequently, by a check or order, transfers his credit to some other person, to whom he has a payment to make; who, in his turn, is as often content with a similar credit, because he is satisfied that he can, whenever he pleases, either convert it into cash, or pass it to some other hand, as an equivalent for it. And in this manner the credit keeps circulating, performing in every stage the office of money, till it is extinguished by a discount with some person who has a payment to make to the bank, to an equal or greater amount." [1]

Such, then, being the unusual importance of the deposit currency, some exact knowledge must be had as to the two ways in which deposits originate. (1) Obviously, deposits originated from carrying money to the bank, the depositor receiving in return a credit exactly corresponding to the money added to the reserves; and this is often thought to be the usual manner in which the deposit item is made up. And in a community where all transactions are performed solely by passing money, in all buying and selling, deposits would be created only in this way. (2) On the other hand, it is literally true that in these days most of the enormous deposits of banks in the United States and Great Britain do not result from the actual deposit of money in a bank. By far the largest part of deposits in a commercial bank are the consequences of a discount operation. A loan is inevitably followed by the creation of a deposit account in favor of the borrower; as yet no money is paid out or comes in. This is the explanation of the rough correspondence in Anglo-Saxon countries between the movement of the loans (an item on the resources side, which in the Bank of England is called "Other Securities") and private deposits; as loans increase, deposits increase; as loans are paid off, deposit credits are extinguished. Then, if we recall that loans are,

Two sources of deposits.

[1] Report on a National Bank, Dec., 1790, p. 2.

after all, a coining of property into means of payment, — that they are operations based on goods, — we see that the deposit item, thus originating, is a fair index of how much property is being moved by this modern medium of exchange. It is a medium which arises out of the transactions in goods; it grows as fast, and no faster (in normal credit) than the exchanges to be performed; it is a machine which expands exactly in proportion to the work to be done, and contracts as transactions fall off. This is a medium of exchange, or currency, based alone on commercial assets, with that modicum of cash reserves needed to protect the normal operations from distrust, or to provide that amount of cash needed in cases of fright or misjudgment.

Deposit currency grows with work to be done.

§ 4. The perfect elasticity of the deposit currency is its most valuable — as it is at the same time its least appreciated — characteristic. A vast amount of discussion and attention has been given to the establishment of an elastic bank-note system; the nineteenth century has put forth libraries of literature on the subject; and yet a medium of exchange, based on commercial assets, and therefore perfectly elastic, is here with us, active, efficient, performing a mass of exchanges out of all proportion to the work of bank notes, or of any other form of money. Given an unquestioned stability of the standard, and omitting all discussion as to the exact material of the standard in which prices are expressed, goods will more and more easily be transferred by means of offsets against each other without a suspicious demand for the standard metal. The greater the stability of the standard, the less it will be used as a medium of exchange; the more changes in the standard are discussed, and the greater the likelihood of the changes being expressed in legislation, the greater will be the uncertainty as to the means of payment, and the greater the demand for the standard metal (gold for instance) to be kept in reserves, or used in business as an actual medium of exchange; and hence the greater the cost of its machinery of exchange, and a

Elasticity of this currency.

lessened power of production to the community — to say nothing of the productive loss due to uncertainty and distrust.

The clear presentation of the function of the deposit currency is due to Professor Dunbar,[1] who describes its relative elasticity as follows: "It adapts itself to the demand of the moment without visible effort and either by expansion or contraction, as the case may be; and it does this quite irrespective of legislative purpose or guidance. . . . The conclusion is irresistible that, if for any reason the creation of deposit currency through the agency of the national banks is hindered or limited, it will make its growth by means of State banks; and, if not by these, then by a system of private banking, which no legislation can touch, until the government shall assume the power of declaring whether A may owe B or not. The growth of this kind of credit may be guided and it may be made more or less sound according to the wisdom of legislation. The stability of the standard to which its value relates is wholly within legislative control, and the continuity of the test of its solvency by reference to that standard is within the scope of legislative influence. But, whether the legislation be good or bad, here is the adjustable part of our system of credit currency, and the part of it which will continue to adjust itself to the scale of the transactions to which current business naturally gives rise.

Deposit currency adjustable.

[1] In his "Theory and History of Banking." Although he evidently received the suggestion from McLeod's involved and somewhat eccentric exposition of credit and banking, the idea is as old as Hamilton (see *infra*, § 3). In a general way the identity of the bank note and deposit currency was early recognized by Mr. Fullerton, and followed by Mr. J. S. Mill.

"The whole bank-note circulation of this country might be turned to-morrow into a system of book-credits transferable by cheque, or all our banking accounts might be commuted, on the contrary, for promissory notes, and in neither case would the course of monetary transactions be essentially disturbed or altered. . . . There is not a single object at present attained through the agency of the Bank of England notes, which might not be as effectually accomplished by each individual keeping an account with the bank, and transacting all his payments of five pounds and upwards by cheque." On the Regulation of Currencies (1844), p. 41. Cf. J. S. Mill, Principles of Political Economy (1848), Book III, chap. xii, § 6.

"And, in view of the extraordinary growth of this kind of credit currency, the mere question of the amount of national bank notes in circulation sinks into insignificance, and with it the question whether their place must be made good by other descriptions of paper, as, for example, by greenbacks. There is a real question as to the convenience of using coin, in place of a part of the paper which the community uses in its small transactions; there is a question as to the wisdom of depriving a great system of banks of the ability to supply whichever form of credit may be required by the public; and there is a grave question as to having any larger part of our credit currency, or any part of it, subject to control as regards its amount, by any legislative body whatever. But as regards the mere question of contraction, still sometimes brought forward with respect to the paper currency, the grounds for it have ceased to exist. For, besides the fact that since resumption [in 1879] specie has come in and must continue to come, through an ever open door, to make good any deficiency of circulating medium, the growth of deposits has covered many times over all loss in the amount of paper circulation. Indeed, we may go farther, and say that if the United States government were to pay off every legal tender note, and if every bank note were to be withdrawn, these changes would produce no real contraction of the currency. With specie thus brought into common use for smaller and every-day transactions, we should, it is true, have a currency far less convenient for its minor uses, and we should no doubt see the use of the deposit and check system thus carried prematurely into classes of transactions and into sections of country where the note now meets a popular demand; but, as regards the mass of exchanges from which the business condition of the country at any given time takes its tone, we should find them carried on as now, by a creation of bank credits on whatever scale the needs of the time might require. In fact, so soon as specie payments were firmly established and the value of credit currency was settled, by its assured conversion at

Fear of contraction of currency groundless if deposit currency exists.

pleasure into a solid medium, contraction ceased to be any proper object of dread. . . .

"The legitimate inference from these considerations is not, however, that the disappearance of the bank note, or the substitution of government paper for it, is to be viewed with indifference. The business of a country in which the banking habit is firmly seated, will, it is true, find a medium of exchange, and in the amount needed; but it is of great consequence that the medium used should be made up of the kinds most convenient for the use of the community, and divided between those kinds in the proportions most convenient. This question of proportion is one which no combination of counsellors, public or private, can determine. No legislature and no conclave of bankers can say that the people of the United States require any given amount of notes for the management of their exchanges. The amount which is sufficient this year may, and almost certainly will, be either insufficient or in excess the next; and it is partly from a sense of the absolute inability of any human foresight to deal with this problem, that we owe the multitude of schemes proposed in years past 'to adapt the amount of the [paper] currency to the needs of the country.'

Choice between notes and deposits should be easy.

"Left to itself, the country settles this problem of proportion in a natural way, by the demand which each individual using a credit currency of any kind will make for notes or for a deposit account, as his special conditions may require. But, in order that this natural process should go on easily and without inconvenience to the community, it is requisite that the banks or bankers with whom individuals deal when obtaining loans or receiving payments should have the ability to respond to demand in either form; in other words, that the creditor of the bank or banker should be able to receive the evidence of his claim in the one form, if he expects to use it in large operations or in a closely settled community, or in the other, if in small operations or where hand-to-hand dealings are the rule,

Creation of notes and deposit currency should be in same hands.

and that the lender should find his profit equally in responding to either demand. It is only by being allowed to take one or the other form, as occasion requires, that a given mass of bank credit can perform its functions with the maximum of public advantage. There may be sound reasons of a different order for not giving the power of issue in both forms to every company or individual carrying on the business of banking; in other words, the ideal of a perfectly free system of banking is no doubt beyond reach; — but that, for the greatest advantage of the public, the issue of notes by banks should be widely enough diffused to present in every considerable district which uses banking facilities at all the easy choice between the two methods of using credit, seems to be beyond dispute. This choice is given only when the power of issue is substantially in the same hands which control the loans and the business of banking generally. It is, in fact, one of the great services rendered by the national banking system [of the United States] that, for a most critical quarter-century, it carried note-issue and deposit banking side by side throughout the greater part of the country, under the management of a class of remarkably sound institutions, giving to the community many of the benefits of free banking, with the minimum of its risks. As a substitute for this system, the issue of notes by the Treasury is as little to the purpose as the striking of coins by the mint; nor is there any machinery by which the operations of the Treasury can be made to perform the desired office. Happily, those operations are quite distinct from the commercial movement of the country, and are unsuited by their nature for any closer connection with it, even if such connection were expedient."[1]

§ 5. The enormous expansion and efficiency of the deposit currency properly raise the question as to its soundness and possible liquidation both in ordinary conditions and in exceptional emergencies. It is the particular application of the

[1] C. F. Dunbar, in an admirably effective exposition of "Deposits as Currency," Quar. Jour. Econ., I, July, 1887, pp. 409–413.

general question discussed under credit, as to the basis of the credit, and its relation to the standard in terms of which it is always drawn. Is the deposit currency limited by the amount of money in circulation? Is it based on money? How can the continuity of its solvency be tested, except by constant readiness to convert deposit currency into the standard coin? Because all checks and deposits are drawn in terms of money, does it follow, as Professor Nicholson declares, that "the whole of this vast superstructure of credit must rest on a metallic basis, and if this basis is cut away, the whole structure would fall"?[1] We have already emphasized the fact that the superstructure is based on goods and not on money; that each credit transaction originated more or less remotely in a transfer of goods; that, instead of credit resting like an inverted pyramid upon a narrow sum of money, each form of (normal) credit rests on a corresponding value of salable goods; and that the forms of credit could come into existence only because of a basic operation in goods. But yet it is evident that liquidation of any part of all this mass of deposit currency in cash is constantly expected, and that every one in actual business acts upon the assumption that checks could be instantly cashed in specie. On the other hand, it is the every-day fact that almost no merchant or firm, in the absence of distrust or panic, demands actual specie for checks or deposit accounts. Enormous quantities of goods appear valued in dollars, and by credit forms pass to and fro in the exchanges. So long as this fundamental and basic process goes on, society is accomplishing its economic ends perfectly; it is getting the needed satisfactions by offering and receiving goods. Why, then, should any one break this circle of exchanging by inserting the necessity of holding actual specie between any of the links in the process? If goods expressed in money appear in a form of deposits so that other goods can be got by using checks, why should any one draw out cash instead? Evidently, no reason whatever exists why specie should be called

Is deposit currency limited by money?

[1] *Op. cit.*, p. 74.

upon, so long as it is believed that the deposits are the creation of normal credit. It is only when abnormal credit, or over-trading, arises that a test of the solvency of these transactions is deemed necessary. If a legitimate loan is forced to liquidation, the salable goods being forthcoming at maturity, the money is obtainable to cover the credit; but when credit not based on goods, by any error, becomes frequent, a demand for liquidation in actual standard coin discloses its falsity. It goes without saying that bankers are constantly engaged in deciding between that which is normal and that which is abnormal credit; and that both kinds are in operation at the same time. Hence a feeling of proper caution demands that certain sums should be kept on hand to meet all the tests which may from time to time be required by conservative banking. This is the reason for reserves to meet deposit currency on demand; the reserves in cash are used as a test of, not as a limit to, the amount of the currency which can be issued. The volume of this currency is limited only by the volume of legitimate transactions in goods, and not by the difficulty of getting reserves. This is what is meant by saying that the deposit currency is based on goods and not on money. The order of events is this: first, a transaction in goods, next the appearance of credit forms arising out of the transaction, then the collection of that amount of specie found by experience to be needed to keep up a continuous test of the solvency of the credit in terms of the standard.

Reserves only a precautionary measure.

On the surface of things, however, practical rules of banking may seem to give the lie to this general conclusion; it may be said, with entire truth, that the loans a bank can make are limited by the amount of its reserves; that a fall in reserves restricts the purchasing power which can be created in the form of deposit currency following from loans based on goods. Of course, it is well understood that the relation between the items of loans, deposits, and reserves is such that an increase of loans

Are loans limited by reserves?

would expand the deposits without adding to the reserves; the same amount of reserves would bear a smaller percentage to enlarged deposits. Therefore, it is said, the loans must be checked in order to keep a proper percentage of reserves to demand liabilities. All this, however, is only a description of the machinery by which an adjustment at any time is maintained between loans, deposits, and reserves. It has nothing whatever to say as to the possibility of an increase in all the items. A certain balance and proportion between base, height, and width is required of a shaft fifty feet high; but if the same mechanical principles be observed, a shaft may be erected as high as the Washington Monument. So of the deposit currency: if the proper proportions of reserve to deposits be maintained, the deposits may rise to any sum. In fact, the increased exchanges of the multiplying products of our country have brought about an expansion of the deposit currency of all our banks from about $1100 millions in 1876 to about $4800 millions in 1900. No one was ever heard to say that this might have been prevented by a lack of reserves; nor is there any reason for limiting the amount of the deposit currency, on the assumption of an absolute scarcity of specie reserves. At one time any one country, like any one merchant, may have a condition of trade in which it has a surplus, or a deficiency, of actual specie, and there will be a give and take between different countries, just as there is between different merchants or institutions. The readjustment of a given supply of the metal in the world is one thing; the absolute amount of that supply is quite a different thing. In normal times, when the banks find increasing quantities of good paper presented for discount, do they hesitate to increase their business on the assumption that their reserves are too small? Not at all; an additional part of their resource items is kept in cash by turning some bonds into money, or in other ways by exchanging property for specie. Banks can buy more gold when they need it, if they have anything of value to offer for it, and if there is any in the world. To this time there is no evidence what-

ever to suppose that the creation of legitimate deposits and loans (panic seasons excepted) has ever been limited by the difficulty experienced by banks in obtaining specie.[1] It is not relevant, then, to the main question to say that the deposit currency is limited by money reserves. If, on true laws of thermo-dynamics, a standard steam-engine of 50 horse power were built, there is a limit to the work which that one engine can do; but that has nothing to do with the making of another engine of 5000 horse power, having a far greater capacity. Thousands of the latter could be built. And yet no one would seriously say that the limit to the horse power of all steam-engines is the quantity of iron and steel in the world, because such a limit is too remote for practical common-sense. Likewise, the absolute increase of demand for gold arising from keeping the same percentage of an increasing quantity of deposits is so insignificant compared with the total world's supply of gold as to be disregarded.[2] The possibility of a test of the solvency of deposit currency in ordinary contingencies may then be regarded as without question or doubt.

Deposit currency not limited by money reserves.

The reasons for granting loans and expanding deposits are connected with the character of the transaction and the collateral offered; the reasons for asking actual cash are of an entirely different kind. Granting that the property pledged and the standing of the borrower are satisfactory, whether cash will be called for by the borrower depends upon such different considerations as these: (1) the business habits of the community; and (2) the confidence of the community in the conditions of business and in the solvency of the banks. In the first case rural districts may require actual money for most loans; but in that instance the notes of the bank, or of other banks, will serve the purpose of

Why reserves are called upon.

[1] The full treatment of the facts behind this assertion is necessarily deferred to Volume II.

[2] Even if twenty-five per cent reserves in gold were required for all deposits in our banks in 1876 and in 1900, the increased demand of the latter could be supplied in about three years by the present annual production of gold without drawing on the accumulations of the past centuries or of the decades since 1850.

specie, and accomplish what is effected by checks in closely settled parts of the country. Hence in places such as large cities where the deposit system is in use, there would be no reason for demanding legal money unless we suppose the entire business habits of that part of the community have been changed — a quite unwarrantable supposition — to those which prevail in country districts. In the second case, lawful money might be called for because the conditions of trade were approaching a panicky state, when forced liquidation had become unavoidable.

§ 6. The test of the solvency of deposit currency is a most serious thing in a season of depression or of actual panic. The holders of notes or deposits who do not draw out cash, but use their demand rights as currency, are leaving the equivalent of the property (on which the transactions are based) in the hands of the bank for a time. When the bank lends the use of some of this property to others, it, of course, increases its demand liabilities by more deposits; but it is also true that for every dollar of new deposits thus created, the bank gets a pledge of additional property to be liquidated in the equivalent of money in the future. How far the bank can go on increasing its deposits depends at a given time on its experience as to the amount of reserves it must keep, considering the habits of its customers; but, so far as the future is concerned, if its discounts are sound, and if reserves are forthcoming, it can go on expanding indefinitely.

Conditions leading to suspension.

Recalling that banks assume responsibility for the certainty that the goods and collateral will be of sufficient value to meet the loan on maturity, then if the banker is in error, if the borrower defrauds, or if meanwhile the business of the country collapses, the bank will find itself caught with promises to pay money on demand; and if the bank has considerable amounts of property in its resources which cannot be converted into lawful money, it may be obliged to suspend.

In countries like Great Britain and the United States

where the check and deposit system is highly developed, a commercial crisis works peculiarly, and the means of allaying a panic must be adapted to the originating causes.

Relation of loans and deposits in time of panic.

As frequently said before, all goods, if pressed for sale at once, could not possibly be liquidated in actual specie or legal money. Yet men who have obligations maturing at an early date are in duty bound to meet them in current funds; if they do not, their notes go to protest and they are ruined. But quite apart from the overtrading described under abnormal credit, it is an unmistakable fact that not all the operations legitimately based on goods can issue in actual specie or legal money. Knowing that he must meet his own paper at maturity, a person having specie or legal money will hold on to it; there consequently appears to be a sudden dearth of the money in which all deposit currency is drawn and in which it is lawfully payable. Banks find depositors drawing on their accounts; reserves decline from both domestic and foreign pressure; and at the moment it may seem that no more loans can be made, because to loan means to increase the demand deposits just when reserves are falling. To cease to loan, however, is to bring about the very thing which every one wishes to avoid: if a merchant, on good collateral, cannot get discounts, he may fail, and his failure will bring down others, until the whole commercial fabric comes tottering down in utter collapse. Then no one can pay, and general bankruptcy ensues. To avoid this, is the interest of every one having payments coming in; and banks having loans maturing are especially interested in putting off failures and preventing an acute crisis. Yet, with every one wildly struggling for actual specie and legal money, each looking out only for himself, what can banks do to calm the excitement? Their only hope is to act all together, and enable each legitimate borrower to meet his engagements at maturity. What is really needed is not merely specie, or legal money, but the means of payment which will be accepted for debts by creditors. Goods are almost unsalable, and securities, if sold under pres-

sure, must be unduly sacrificed. There is as much money in the country as ever; it has not been destroyed; yet it seems impossible to get any of it. The convergence of unusual stocks of goods on the market to be sold causes a general fall of prices, because buyers are few; and market prices doubtless fall even below normal expenses of production. This fall of prices is not due to a scarcity of money; the seeming scarcity is due to a sudden unwillingness to exchange goods in the usual manner; when men, forsaking the usual media of exchange, refuse to part with goods except for specie or for lawful money, the amount of such money ordinarily kept on hand is obviously insufficient for this purpose.

Clearing-house certificates.

Under such panic conditions, the true theory of credit which underlies the deposit currency suggests the practical basis of relief in the United States. At the moment when the expanding struggle for specie or lawful money acts to prevent loans, a committee of the ablest and most experienced bankers, acting for all the institutions of a given city or district, may say to any one bank: "We will issue to you a special means of payment in the form of clearing-house certificates to seventy-five per cent of the value of good collateral in your loan item, if you will transfer them to us as security; and all the banks represented agree to receive these certificates in payment of notes due them by merchants." By this means, any single bank, although unable to grant loans and create deposits payable in specie, or lawful money, is able to give aid to a hard-pressed borrower in the form of clearing-house certificates which will provide the means of payment needed to meet his maturing engagements. In reality, by common action, a new form of the old process is resorted to in this emergency: by coining the collateral held by the banks into means of payment, the property or goods on which that collateral rests are again set in motion, and given exchange power, instead of being irrevocably locked up and wasted, or sacrificed at ruinous concessions of price. By so doing, the combined institutions create, so far as their voluntary agreement can go, a medium of exchange for goods,

when by abnormal conditions the uses of all the ordinary media have been brought to a sudden stop. The clearing-house certificates of associated banks, ultimately analyzed, are only a means of allowing goods (expressed in terms of standard money), instead of the actual legal tender itself, to become a solvent of debt. These certificates have been resorted to by some American institutions because no other means which would serve a similar purpose have been created by our banking laws.

Suspension of the Bank Act of 1844.

In Great Britain the suspension of the Bank Act of 1844 is a device to accomplish the same result there which is obtained here by the clearing-house certificates. By that act the Issue office has been completely separated from the Banking Department, which carries on only the two functions of discount and deposit. In the Issue Department notes can be issued by law on deposit of government securities only to the amount (at present) of about £16⅔ millions, and for every note put forth beyond that amount a pound in gold must be behind every pound of notes. The Banking Department, as a bank for bankers and thus the pivotal institution of England, by its enormous loans, creates a proportional amount of deposits; and the wholesale business of exchanging in London is largely done by deposit currency, that is, by checks and drafts drawn on deposits created by loans. When panic conditions develop, the pressure for gold by home banks, as well as the drain on deposits for export, draw down the cash reserves, which include Bank of England notes, for which gold can be got by crossing the court to the Issue Department. Yet a great and increasing amount of loans may have to be met; to refuse to lend would be to bring on the disaster which all are striving to escape, — that is, liquidation only through bankruptcy. The remedy adopted is, in brief, to lend freely to all who can offer proper collateral; the moment this policy is decided upon, the alarm will be quieted, and the exchange of goods will flow on normally again. But how can loans be increased when reserves are low? This is accomplished

when the Directors of the Bank carry government securities from the resources of the Banking Department over to the Issue Department, in violation of the law, and there obtain notes for them in excess of the amount permitted by the Act of 1844 to be issued on the deposit of state securities. That is, the Bank by this process — for which the Ministry agree to bring a bill of indemnity into Parliament to protect the Directors — coins the securities of the realm into means of payment by which debtors can meet their indebtedness at maturity. Not that the new notes are actually issued to any appreciable amount; for they are not. But their presence in the reserves, increasing the percentage of reserves to deposits, allows the deposit item to be increased indefinitely. Consequently, at a time when the existing specie and notes are insufficient to do all the work of exchange, the Bank is again able to lend, and thus to provide by the deposit currency all the means of payment needed by the business public for meeting its obligations. Merchants who get loans can then meet their engagements by checks on the Bank of England; and that is enough. Cash is not used. The subsidence of fear immediately follows the suspension of the Bank Act, the abnormal rush for specie ceases, gold is not forced into an enlarged use as a medium of exchange, reserves again fill up, and return to their usual function of a partial stop against distrust.

Money plays a secondary part.

Reserves never can, in fact, be sufficient to meet all demand liabilities, so that they usually serve only as a means of indicating a coming storm when they decline from repeated withdrawals by depositors, — just as the drop of the barometer indicates danger ahead. To weather the storm one must know thoroughly the nature, function, and efficiency of the deposit currency as a medium of exchange and as a means of payment. In a crisis this deposit currency proves itself superior to legal money, since it is the only means of payment accessible. The actual specie carried plays but a secondary part in the whole operation of buying and selling, of paying and receiving, of giving and

extinguishing credit. The importance of specie resides in its serving as a more or less stable standard in which prices of goods and forms of credit are expressed. The deposit currency expands and contracts according to the transactions in goods, but not in any correspondence whatever to the numbers of the population, except so far as an increase of numbers brings with it an increase of products and thus of exchanges. There is no more connection between the quantity of the media of exchange needed to do a country's business and its population than there is between the number of locomotives on our railways and the supply of manual labor. The extent to which the deposit currency is enlarged depends not on the bankers, but upon the public, who use the bankers as agents to create either form of demand liability, either notes or deposits, according to the wish of the customer.

§ 7. Having thus discussed the process of testing the solvency of the deposit currency, both in normal and abnormal conditions, we are in better position to determine its effect on the value of gold and on prices. Remembering that price is the exchange ratio between any article and the standard, — as, for example, gold, — let us, in the first place, deal with the effect of an expanding deposit currency on the gold side of the price ratio. Here is an enormously effective medium of exchange, requiring at times to be tested as to its solvency in the standard. In normal conditions of business, if loans were steadily increasing because of increasing production and of a greater volume of transactions, there would, because of any insufficiency in gold reserves, ordinarily be no permanent check on this expansion of loans. Of course, while, at any one moment, the amount of reserves actually held does limit the then existing loans and deposits, yet it is perfectly clear that, as more good loans are offered year by year, the banks will provide more gold by changing a fractional part of their increasing resources — which rise *pari passu* with the liabilities — for additional supplies of gold.

Effect of deposit currency on value of gold.

This is the way in which the expanding deposit currency discloses an increased demand for gold; that is, more of it is required to maintain continuous solvency in the standard. Clearly there must be some increase, although it may bear no regular proportion to the growing volume of transactions; for other media of exchange than gold are often made lawful money, and are used in reserves. Moreover, as we have seen, a time of panic shows that, after all, ultimate liquidation must be made in goods, and not in actual specie. The real function of a specie test is to force an elimination of the abnormal from the normal credit.

Distribution of world's gold.

Without entering upon the international movement of money (see chapter x), it is enough to point out here that an increasing deposit currency (in this country, for example), since it is based on increasing transactions in goods, might be, in so far as it has created a demand for more gold in our reserves, only a means of indicating our claim to a greater part of the world's supply on the assumption of a change in our favor of the proportion of our transactions to those of other nations. If there were only a fixed amount of gold in the world, we should, according to Ricardo's law of distribution, claim our share of it, in the proportion that our transactions might bear to those of other countries. In such a case there might be only a re-distribution of the world's gold, without any increase in the total demand, and thus no change in its world value as compared with goods in general.

Demand for gold for world's reserves.

But suppose, with a fixed supply of gold in the world, that an increase of transactions based on an increase of products, had led to an expansion of the deposit currency in all countries alike. Then the increased demand for gold in the reserves would be general, and there would be a definite increase in the total demand for gold, and in so far a change in its value. The supposition of a fixed supply of gold, however, is far removed from the facts as they have become known to us since 1850. The increased supply has certainly been sufficient to provide many times over all the needed addition to the reserves (although other

demands which ought to be considered must be here omitted). The demand for reserves as compared with the overwhelming supply of recent years is inconsiderable. This, however, is a statistical question which must be deferred to the volume on metallic money. So far as reserves are concerned, two or three years' annual product of gold would provide all that are now required, for instance, by Great Britain and Germany; and the large production of gold still continues. If the value of gold is seriously affected by new demands, then it must be due to other requirements than those originating in the needs of the increasing deposit currency. So far as the general level of gold prices is concerned, it cannot be said that the level has been sensibly lowered by influences arising from a demand for gold reserves in general, which have affected the gold side of the price ratio.

On the other hand, it must be at once apparent that an increasing deposit currency, growing in proportion to transactions in goods, could have little or no effect on the goods side of the price ratio through any changes in the normal expenses of production of the goods themselves. Hence the deposit currency, being only a medium of exchange by which goods are bartered against goods, could not directly affect their prices, or their ratio of exchange to gold. Although drawn in terms of gold, the deposit currency can touch normal prices only in so far as it affects the value of gold; and this we have found to be inconsiderable.

Deposit currency has no effect on commodity side of price ratio.

To some it may appear that purchasing power equal to money is created to the extent to which the deposit currency expands, and that this purchasing power has the same effect on prices in general as an equal amount of money would have; that general prices are fixed by the money demand, made up of all the actual money plus all the forms of credit used as currency, as compared with the mass of goods to be exchanged; and that, in order to obtain the price level, the total supply of money should be measured against the transactions to

Error of price comparisons between goods and the quantity of the media of exchange.

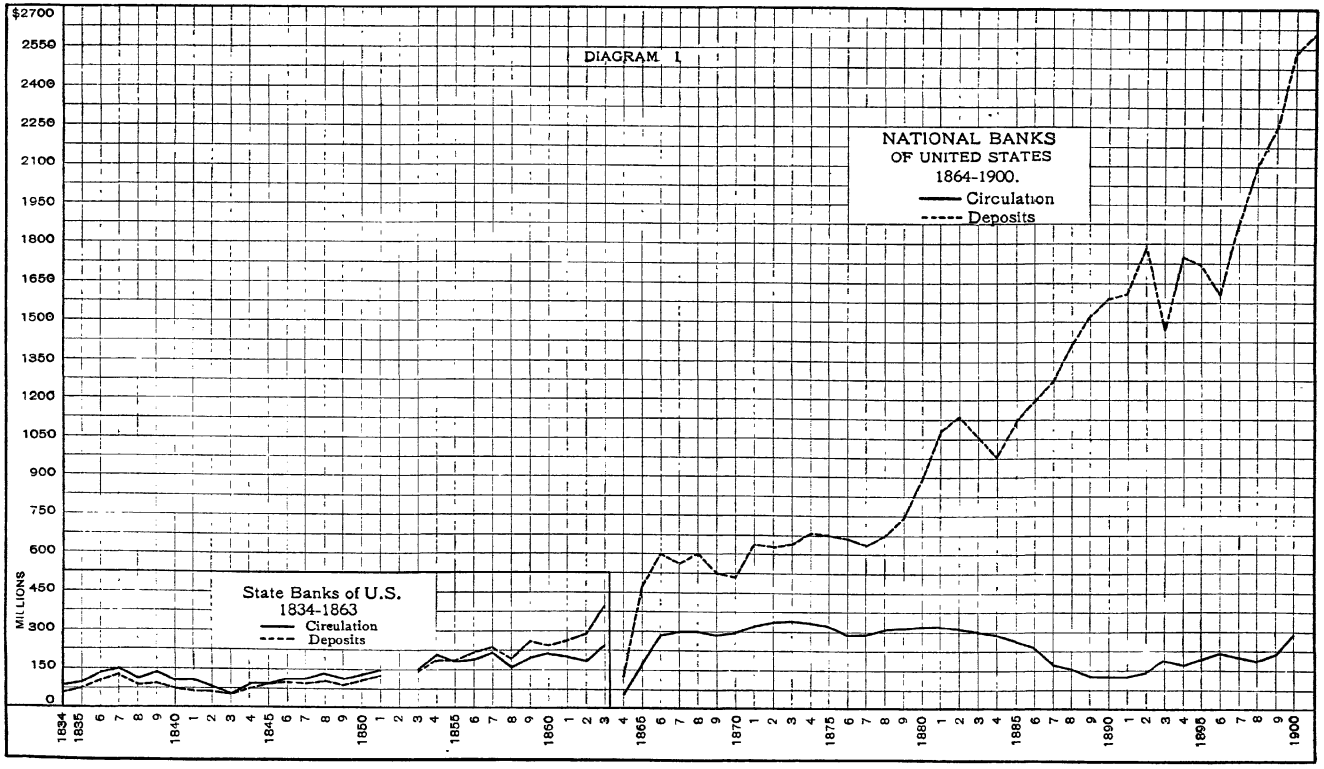
be effected (that is, the money work to be done). We may so far anticipate the discussion of the theory of prices by saying here that the fallacy in this point of view is to be found in the contention that prices are fixed by comparing goods with the medium of exchange rather than with the value of the standard or common denominator. Of course, with more goods to be exchanged, the media of exchange must expand; but that may often have nothing whatever to do with the price ratio between units of goods and gold. Indeed, this exposition has been fruitless, if it has not shown that in the deposit currency we have a medium of exchange arising out of goods, mounting as transactions rise, and expanding with, and exactly in proportion to, the operations in goods which called the medium into being. To suppose that offsetting goods against each other raises or lowers their prices in general is to suppose that after the prices of goods are stated in gold the subsequent exchanges determine the price-making previously fixed. It is a case of the cart before the horse. We must insist upon keeping the simple conception of price before our eyes; it is the exchange ratio between goods and the standard, not between goods and the quantity of the media of exchange. The only way in which the quantity of the various media of exchange, which are not the standard metal, can affect general prices is by raising or lowering the value of the standard in which prices are expressed. Usually credit devices employed as currency save gold from being used as a medium of exchange, and thus tend to lower its value, and cause a rise of prices; but, in fact, the development of credit devices, while removing what would otherwise be a great demand for gold (as a medium of exchange), has carried with it a sensible but relatively unimportant increase in the demand for gold. Hence, so far as the deposit currency can be said to have affected prices at all, it has been by raising the value of gold, and thus lowering prices. To suppose that the deposit currency raises prices by increasing general purchasing power in proportion to its increase in volume is like supposing that an increase

Only way deposit currency can affect general prices.

of tickets increases the number of chairs at the opera. In deposit currency an increase of transactions brings with it, as a necessary consequence, the medium by which exchanges are made; and offsetting goods against each other could not raise general prices.[1] Fluctuations in demand and supply, of course, change market prices; but the deposit currency cannot be supposed to change normal prices, except on a false theory of prices, such as that which compares goods with the media of exchange instead of with the standard.

It may be objected to the above reasoning that it is quite aside from the point; that present means of payment created on the sale of x goods could, of course, not have had any influence upon the price of the x goods, since the price-making for x antedated the creation of the discount; but that it certainly would be true that the purchasing power arising out of the transfer of x goods would have an effect on the price of other goods, y, for which it would be offered; and that this purchasing power arising from x is a means of raising the price of y for which it is offered. To this it is to be replied that any such partial demand, if that were all there is to the practical situation would certainly affect price; but the demand arising from the credit based on x is not the only factor in the situation. It is also to be remembered that the use of credit will doubtless be general; and that what is true of x will be true of y, and of all goods. The special demand for y is likely to be met by an increased supply (monopoly being here left out of consideration) so soon as the processes of production will permit. Hence the purchasing power arising from the credit based on x is, provided goods are produced in the proportions wanted, offset by a similar and equivalent purchasing power based on y, so that the price of y will be affected, if at all, only for a short time. In brief

[1] General Walker accepted this general fact when he said: "Many of these goods [to be exchanged] may conveniently be exchanged directly against each other in barter, or indirectly through the intervention of commercial and financial credit, without the use of money. Such goods do not constitute a factor in the demand for money." The Quantity Theory of Money, Quar. Jour. Econ., July, 1895, p. 373.


DIAGRAM I
NATIONAL BANKS
OF UNITED STATES
1864-1900.
Circulation
Deposits
State Banks of U.S.
1834-1863
Circulation
Deposits
MILLIONS
$2700
2550
2400
2250
2100
1950
1800
1650
1500
1350
1200
1050
900
750
600
450
300
150
0
1834
1835
1840
1845
1850
1855
1860
1865
1870
1875
1880
1885
1890
1895
1900

periods the adjustments of special demand and supply produce changes in relative values of goods; but these actions can have but little, if any, influence on the general level of prices, and thus on the value of gold.

§ 8. The confirmation of the above exposition may be found in the history of the deposit currency in the United States. In Diagram I the two media of exchange, the note issues and the deposit currency, are shown in their comparative development. During the early decades, when the whole nation, in the main, had the monetary characteristics of rural rather than of city districts, the use of notes naturally predominated, and the banks perforce suited themselves to the needs of the business public. In brief, not until 1855 did the deposit currency of the United States exceed the total issue of notes. Thereafter the notes never overtook the expansion of the deposit currency. It is a striking and illuminating lesson that, after 1873, the whole increase in the work of exchanging goods through banking devices was performed by the deposit currency, and not at all by the notes of National Banks. Indeed, it may now be inferred, with a fair approximation to accuracy, that the general movement of the line of deposit currency corresponds to the general growth of the production and exchange of the country's goods. The case is really stronger than that presented by this diagram, because, as is well known, a vast amount of exchanging through banks has also been done by institutions other than National Banks. The trust companies and State banks, both organized under the laws of the separate states, do not issue notes, but carry on the operations of discounting by the use of the deposit currency. To state the whole truth, their operations should be added to that indicated by the line in the diagram showing the deposit currency of the National Banks (although the services of other paper money, like greenbacks, should also be considered).

History of the deposit currency in the United States.

In our early banking history the game of speculation took

the form of a banking craze; but, the conditions being rural, notes were in general use, because that form of demand liability was preferred by the public. The abuse of banking led, of course, to a condemnation of the forms most in evidence; this accounts for the fact that down to the Civil War statutes regulating the excesses of banking related chiefly to note issues, as if they were the only forms of currency created by banks; while the deposit currency has been wholly ignored. In fact, to the present day in our country, there is a prevalent belief — which has come down to us from the earlier decades and from radically different conditions — that the operations of a bank can be effectively controlled by regulations applied to the note issues. The diagram shows at once how foolish such an attitude now is, and how inconsistent it is with the facts of our present system. Fortunately, no attempt has ever been made by statute to limit the deposit liabilities of a bank, and hence this form of currency has been able to operate untrammelled by ignorant interference, and has been left free to rise exactly in proportion to the increased work to be done. When we once realize the fact that the notes do an insignificantly small amount of the money work of exchanging as compared with the deposit currency, we can understand why the practical influence of legislation on bank issues is a question subordinate in importance to the unmistakable elasticity of the deposit currency. In the American discussions of to-day as to the safety and efficiency of a note issue based on commercial assets, it should be borne in mind that the public are already using a deposit currency based wholly on assets, whose efficiency is taken as a matter of course, and whose safety in normal credit is never questioned.

Bank notes and deposits compared.

Nor should there be any mistake as to the actual results produced by the several factors in operation. The diagram shows only the relative amounts at the same time of the two media of exchange created by the national banks; no data are there given as to the actual achievements accomplished by each of these media. The

Bank notes and deposits in clearing-house returns.

activity of a given amount of deposits, in exchanging goods by checks, is much greater than the same amount of bank notes. But, however that may be, we have an actual record — as near as can be expected — of the extent of the exchanges performed by the deposit currency in the daily, weekly, and annual clearings of the country. In 1901, with deposits of about $5602 millions in all the commercial banks of the United States, the work performed by those deposits — remembering, of course, that balances were paid in money — is approximately represented by the total annual clearings of about $114,190 millions. In the city of New York alone, the deposits of the Clearing House Banks were, in 1901, about $950 millions, and the annual clearings in New York City were $77,020 millions. To do this work the balances paid in money aggregated, during the year 1901, $3515 millions; of this sum gold certificates amounted to $3509 millions; paper money was used, at the outside, to only $\frac{4}{10}$ of 1 per cent, or less than $14 millions. The national bank notes used could have been but an insignificant part of this sum of $14 millions; while the major part of the clearings of $77,020 millions was effected by the deposit currency, amounting to $950 millions.[1] Nothing more need be added, in a practical way, to show the enormous preponderance in importance of the deposit currency over the note issues of the banks in doing the present work of exchanging goods.

[1] Cf. Report of the Comptroller of Currency, 1901, I, pp. 436, 567, 568, 579. The deposits of non-members clearing through the New York Clearing House were about $80 millions.

CHAPTER VI

TABLES OF PRICES

As to the Chapter of Prices, it will be in Every Body's Power, to make it more compleat, by reading the old Computus's, that he shall chance to light upon, and inserting what he finds wanting, or differing from the Accounts, that I have given. — BISHOP FLEETWOOD, *Chronicon Preciosum* (1707), Preface.

C. M. WALSH, *The Measurement of General Exchange-Value* (1901). — A. L. BOWLEY, *The Elements of Statistics* (1901). — F. Y. EDGEWORTH, *Reports of British Association*, 1887 (pp. 254–301), 1888 (pp. 188–219), 1890 (pp. 133–164). — IBID., articles "Averages" and "Index-numbers" in PALGRAVE'S *Dictionary*. — R. P. FALKNER, *Report by Mr. Aldrich from the Committee on Finance of U. S. Senate on Wholesale Prices* (1893). — J. S. NICHOLSON, *The Measurement of Variation in the Value of the Monetary Standard*, Monetary Problems, pp. 312–341. — E. LASPEYRES, *Hamburger Waarenpreise Jahrb. f. Nat. und Stat.* (1864), B. III, pp. 81–118. — IBID., *Die Berechnung einer mittleren Waarenpreissteigerung*. Ibid. (1871), B. XVI, pp. 296–314. — W. S. JEVONS, *Investigations in Currency and Finance*, pp. 13–159. — L. WALRAS, *Elements d'économie politique pure* (1889), pp. 431–432, 457–468. — H. WESTERGAARD, *Die Grundzuge der Theorie der Statistik* (1890), pp. 218–220. — F. W. TAUSSIG, *Results of Recent Investigations on Prices in the United States*, Yale Review, Nov., 1893. — N. G. PIERSON, *Further Considerations on Index Numbers*, Econ. Journ., March, 1896. — R. S. PADAN, *Prices and Index Numbers*, Journ. Pol. Econ., March, 1900. — T. S. ADAMS, *Index Numbers and the Standard of Value*, Ibid., Dec. 1901, March, 1902.

§ 1. IN all cases a given price quotation is a statement of the quantity of a specified money standard for which a commodity will exchange. Even when a depreciated paper is the actual standard, so long as its value is above zero, this paper bears some ratio to a money metal; hence a price records the relationship of value (although sometimes through the indirect process of a depreciated paper) between any one article and some money commodity. Out of such individual quotations existing price tables are made. On the same day or at different dates the same article may bring widely different prices. The practical question for statisticians is to determine how to record truthfully the actual facts of price, and to indicate clearly

Tables of prices not simple.

the direction in the changes of price from any given starting-point. In practice, this is not so simple a matter as it seems. For instance, it would not be truthful to say that the price of wheat during any one year was correctly represented by the price on any date taken at random, such as the first of January. Moreover, if there are several quotations on any day, which of these shall be taken as correct? Or, if all be included, how shall the average of these figures be found? Or, even if the method of computing the average be settled, shall each quotation be given equal value in constructing the average, irrespective of the fact that only five units of the commodity were sold at one price and five thousand at another? That is, shall the coefficient of the quantity sold be allowed to have any influence on the average price?

If these questions may be properly raised in regard to the tabulation of any single article during a given period of time, we are not likely to escape other difficulties when we attempt to combine the price data of two or more commodities in a common average, so that we may get an expression in one series of numbers, or averages, for the movement of the prices of many goods. To some minds such an attempt has seemed useless and impossible. Mr. F. D. Longe (who began the controversy on the Wages Fund), for example, thought that a concept of the average prices of cloth and ships was absurd; and Mr. Mulhall[1] regarded the results of index numbers as wholly fallacious. More recently, a high authority, Mr. N. G. Pierson,[2] has gone so far as to throw discredit on all attempts at recording movements of prices. The average obtained from the quotations of individual articles has been characterized as a purely fictitious thing, as something which gives a concrete expression to a thing which never existed. Conceding, however, that an average of the prices of several commodities may not be the actual price at which any one of the

Purpose of tables of prices in this study.

[1] History of Prices (1885), p. 7.

[2] Economic Journal (March, 1896), pp. 127–131. Answered by Edgeworth, *ibid.*, pp. 132–142.

goods was sold in the market on any day, and that in this sense it is a "fictitious" series of numbers, yet the purpose of the computation must be kept in mind. The object in view is to get a quantitative statement of the average of the changes in the purchasing power of a money commodity; the sum of all the prices of certain units of goods at any one time represents accurately how much of the money metal is of a value equal to a certain collection of commodities; and the comparison of these sums at different times certainly shows the actual exchange relations in the market between the commodity, chosen as the standard in which prices are to be expressed, and that particular quantity of goods bought and sold.

Also, a series of average numbers for the prices of goods in general cannot, in any true sense, be regarded as "fictitious."

An average of prices not fictitious.

The number obtained from averaging numerous quotations is a reality, as much as other things in life. It is a true statement of a mathematical relationship between certain accepted facts; the average is a reality because the things out of which it is constructed are realities; it is restricted from being other than what it is by the actuality of the elements out of which it is made; it is a truthful record exactly because it cannot be "artificial," and because it is limited in its nature by the nature of its constituents.

If, as has been sometimes assumed in discussing the theory of prices, the average level of prices is arrived at, not from a computation of actual quotations of single articles, but by trying the chimerical process of comparing an abstraction called "money work," (whatever that may be, and however that may be quantitatively stated) with another statistical impossibility, the total quantity of the media of exchange, then there may be some reason for regarding an average level of prices as "fictitious." Such a characterization of a long-used theory of prices is not wholly unjust, because, according to it, the level of prices as a whole is supposed to be affected by the forces as stated, and, through this general influence on the average,

Why an average might have been regarded as fictitious.

one must suppose that the effects of changes on the general level will pass down to single articles. But such an interpretation of this theory ought not to be pressed, since its supporters vary so much between themselves in their statements of it. It is referred to here only as bearing on the concept of an average level of prices, and its reality.

Unmistakably, each single quotation is made in terms of a given standard commodity (or indirectly so in the case of inconvertible paper), and not in terms of the various media of exchange, since these media may or may not be the same as the standard commodity. A list of prices continued through a suitable period of time is a record of the value relationship existing between goods and the money commodity. Such a table says nothing as to causes, but its changes are records of actual changes in the exchange values of the two terms of the price ratio.

Tables are in terms of the standard.

A table of prices, again, is invariably made up of the quotations of certain customary units of goods, such as bushels, yards, tons, etc. This is frequently overlooked by the social philosopher. A rise or fall in prices, clearly enough, is the outcome of a rise or fall in the selling price of separate units of the goods, and it conveys no direct information whatever as to the total value of the product arising from a given industry. It is important, in using price tables, to remember that they contain no statements whatever as to the number of units of goods produced by a given amount of labor and capital. If a fall of price per unit be accompanied by a disproportionate rise in the number of units produced by the existing plant, due to increased efficiency, the fall of price may go with prosperity and greater profits rather than with industrial depression and lower profits. By not regarding a general fall of prices as an evidence of the diminished total value of the product, but as a record of the changes only in the prices of units of those goods, many errors may be avoided.[1] Tables of prices throw

Quotations are for customary units.

[1] Given the number of units produced as a constant, of course the value of the whole product is affected by changes in the price of each unit; but, in actual

no light on the forces affecting the value of the money commodity, or on the elements, such as industrial efficiency, entering into the changes of price per unit.

Index numbers.

The averages obtained from quotations of single commodities, when combined for any number of goods, are conveniently reduced to percentages. Starting from some base, the number 100 is used to represent either the average of a given year or that of several years, and the higher or lower quotation in subsequent years relatively to the initial price can be expressed by the relation this bears to 100, the base. The series of figures thus obtained are known as index numbers. For instance, suppose that in 1860 and in 1870 prices stood as follows:

	Wheat.	Steel.	Wool.	Corn.	125 80 120 50 4)375
1860	\$0.80 = 100	\$30 = 100	\$0.30 = 100	\$0.40 = 100	
1870	\$1.00 = 125	\$24 = 80	\$0.36 = 120	\$0.20 = 50	93.75

If the price of each article in 1860 be taken as 100, or the base, the price in 1870 can be reduced to a percentage of the price in 1860, as above, wherein wheat in 1870 is 125 per cent of its price in 1860, steel 80 per cent, wool 120 per cent, and corn 50 per cent. Then, to find the index number of 1870, we may take the average of the percentages of all the articles quoted in that year. Hence we may be able to say that, on an average, the prices in 1870 of all the articles quoted are 93.75 per cent of those in 1860.

Social purposes of prices.

Lists of prices, in addition, have been used not only for monetary but for social purposes. In the former use the tables are desired in order to ascertain the purchasing power of a given money standard over goods in general; but very seldom, or never, do existing price

industry, the number of units produced is not a constant, and arguments should not be based on that assumption. The price per unit often varies because the number of units produced is varying.

tables include quotations of labor, or rents of houses. If goods and labor are priced in the same standard, a means is at hand to determine accurately the changes in the real wages of labor; since the actual quotations of money wages paid are of little purpose without a means of comparison with what the wages will buy. The relation between the money commodity and human effort, as recorded in prices of labor, is a matter of the first economic importance. If wages in gold rise, and yet goods fall relatively to gold, real wages have risen doubly.

§ 2. The different methods of computing averages are concerned mainly with finding a correct average of the several price quotations. The three principal ones are thus described by Mr. R. S. Padan:[1]

> "We have thus to consider three kinds of mean in relation to average — arithmetic, geometric, and harmonic. An arithmetic series, as is well known, is one that has a constant difference between the successive members, as 5, 8, 11, 14, etc., with the constant difference 3. A geometric series has a constant ratio between successive members, as 2, 4, 8, 16, etc., with the constant ratio 2. The harmonic series is not so simply stated as either of the above. . . . If we express an arithmetic series in the form of fractions ($\frac{3}{1}$, $\frac{5}{1}$, $\frac{7}{1}$, $\frac{9}{1}$, etc.) and invert the various fractions, we have a harmonic series, as $\frac{1}{3}$, $\frac{1}{5}$, $\frac{1}{7}$, $\frac{1}{9}$, etc. In any of these series, any member is a mean between its left-hand and its right-hand neighbors. For instance, in the harmonic series above, $\frac{1}{5}$ is the mean between $\frac{1}{3}$ and $\frac{1}{7}$. It needs only to be added here that between the same two quantities the arithmetic mean is numerically greater than the geometric, and the geometric is greater than the harmonic. For instance, between 4 and 25 the arithmetic mean is $14\frac{1}{2}$; the geometric 10; the harmonic $6\frac{2}{29}$."
>
> Arithmetic, geometric, and harmonic averages distinguished.

It is doubtless true that one method of computing an "average" may be correct for one and unsatisfactory for another purpose. In short, much depends upon what it is sought to accomplish before we can say that this or that

[1] Prices and Index Numbers, Jour. Pol. Econ., March, 1900, p. 172.

method is the only right one. Assuming a certain thing to be accomplished, it is wholly possible that the harmonic mean might be the right one to use. For instance, suppose that a majority of the articles quoted as falling in price were low-priced goods, while a very few, which had risen quite exceptionally in price, were very valuable commodities, the real significance of the general change of prices might conceivably be more accurately expressed by a number which stands nearer to the smaller than to the larger amounts in the series of quotations; then, given the economic purpose, the mathematical instrument chosen might properly be the harmonic mean.

Purpose of inquiry decides use of mean.

Although emphasis may be laid on the word "average," and its unconscious use by the human kind; and although this concept of average may be synonymous only with the result obtained by an arithmetic mean, — even then it may be open to the statistician or economist to use some other mean, provided the purpose of the investigation does not necessitate acceptance of an instrument which always conveys the qualities thus associated with "average." It is possible that an end to be attained may not be gained by using an "average," if the word be regarded as belonging to only one kind of mean. Mr. Padan urges with much force the view[1] that the concept of average necessarily carries with it the arithmetic mean:

> "The conception of average is so wrought into the consciousness from early life that it scarcely needs elucidation. . . . One or two examples of averages . . . will suffice for our purpose. If two boys are aged, respectively, 6 and 10 years, their average age is 8 years, the arithmetic mean. $6 + 10 = 16$, and $8 + 8 = 16$. That is, the conception of an average is such that if the number of units in it be substituted in each term of the series to be averaged, the aggregate number of units is not changed. . . . If two clocks vary from the true time, respectively, by 20 and 30 minutes, their average variation is 25 minutes, the

The word average associated with arithmetic mean.

[1] Prices and Index Numbers, Jour. Pol. Econ., March, 1900, pp. 73, 74.

arithmetic mean. Why should we not say of two prices, say of wheat, if the price of one bushel is $1.50 and the price of another bushel is $2.00, the average price for the two bushels is $1.75, the arithmetic mean ?"

Therefore, if our problem in an economic sense demands that the average obtained, when substituted in place of each term of the series, will yield an unchanged aggregate of units, then the arithmetic, and no other kind of mean, should be employed. The choice between the different mathematical instruments must really be decided by the nature and purpose of the inquiry. Hence, when Professor Jevons argued in favor of the geometric mean on the ground that it lay between the arithmetic and the harmonic means, he was justified in his choice, provided he showed that the problem of expressing the purchasing power of gold rightly demanded a lower series of "averages," or index numbers, than that obtained by the arithmetic mean.

Therefore, in discussing the value of money and the changes in its purchasing power, as evidenced by fluctuations in general prices, we must first decide what it is that we are seeking for. If that be first settled, then we can easily enough select the proper mathematical instrument suited to the purpose. The point to be always kept in mind is that this is an economic, and not a mathematical, problem.

The price of a bushel of wheat or of a ton of steel is the number of grains of gold for which it will exchange. The problem of the exchange value of money is to ascertain the relative amounts of goods exchangeable for a given amount of gold (or other money, as the case may be). We wish to be able to say whether a given amount of gold buys more or less of goods in certain proportions at one time as compared with another, taking into account not merely the quantitative mass of goods, but the satisfactions yielded by these goods as affected by the changes of price. If a statement of the prices of certain articles, expressed in percentages of their respective prices in 1860, be arranged as follows, the total outcome will show whether

Problem in value of money.

more or less money is made equal to the same quantity and same quality of commodities:

	Wheat.	Steel.	Wool.	Corn.	Cotton.	Average.
1860	100	100	100	100	100	100
1870	80	70	90	60	150	90
1880	110	50	70	55	120	81

If gold be the money commodity; if we are looking at these goods objectively from the point of view of gold; and if we wish to know whether a given sum of gold obtains in exchange more or less of the above articles, and in the same relative proportions, it is quite clear that we ought to know the total outlay of gold which is equal in value to the sum of all of the same quantities of goods at the different periods.

Without clearly giving us an analysis of the economic problem to be solved, Professor Jevons advocated the use of the geometric mean, and in cases where the arithmetic mean had been generally used as the most convenient instrument. His reasons are briefly these:

Jevons's argument in favor of the geometric mean.

"Thus the price of cocoa has nearly doubled since 1845–1850. It has increased by 100 per cent., so that its variation is now expressed by the number 200. Cloves, on the contrary, have fallen 50 per cent., and are now at 50. The arithmetic mean of these ratios would be $\frac{1}{2}$ (200 + 50) or 125. The average rise of cocoa and cloves would then appear to be 25 per cent. But this is totally erroneous. The geometric mean of the ratios expressed by the numbers 200 and 50 is 100. On the average of cocoa and cloves there has been no alteration of price whatever. In other words, the price of one is doubled, of the other halved — one is multiplied by two, one divided by two — on the average, then, the prices of these articles remain as they were, instead of rising 25 per cent." [1]

[1] Investigations in Currency and Finance, p. 23. Laspeyre's argument in favor of the arithmetic average against Jevons is shown not to be wholly adequate by Walsh (p. 268). Laspeyre's position is commended by Mayo-Smith, Science of Statistics, II, p. 492.

The adequacy of this reasoning has been attacked on the following grounds. "Multiplying by 2 and dividing by 2 are mutually neutralizing operations, but it depends entirely on the quantities operated on," says Mr. Padan.[1] "If 100 be multiplied by 2, and then the product 200 be divided by 2, the original quantity 100 is regained; but if we perform the two operations on the same quantity, as does Mr. Jevons, the result is not so simple. He multiplies 100 by 2 and divides 100 by 2, and then by dwelling on the identity of multiplier and divisor, and ignoring the remaining elements of the problem, he reaches a chimerical conclusion. . . . If a man should make two investments of $100 each, and realize 200 per cent. on one investment and 50 per cent. on the other, Mr. Jevons's style of reasoning would figure out no reward for the investor's pains. Modern book-keeping shows no such sterility in real transactions. The investor makes $100 on one transaction and loses $50 on the other, showing a net gain of $50." [2]

Jevons's reason for using the geometric mean seems in reality to have been that variations of prices are variations of

[1] *Op. cit.*, p. 175.

[2] If an expression of the changes in the purchasing power of gold be sought for, then it is claimed that the geometric mean is unsuited for this purpose. On this ground Mr. Padan argues thus:

"The absurdity of the geometric method will be manifest if we consider cases of extreme variation. To begin with Mr. Jevons's illustration, a rise expressed by the ratio 2 is offset by a decline expressed by $\frac{1}{2}$. In the same way a rise expressed by 4 is offset by a decline expressed by $\frac{1}{4}$; or, which is the same thing, if two commodities each double in price, their variation is offset by that of a single commodity declining to $\frac{1}{4}$ its standard price. By the same logic 100 commodities doubling in price would be offset by one commodity declining to $\frac{1}{2^{100}}$ its standard price. That is to say, one commodity by declining in price can offset any rise in all other commodities combined, and the result will be an average of no variation.

"We can bring out the absurdity in a still bolder form. Let us take the case of a commodity that may have a compass of price, including zero, such as water. By the geometric method what is the average price of water between its extreme rates, taking the maximum rate, 2, and the minimum rate 0? The true average is the arithmetic mean, 1. The geometric mean is $\sqrt{2 \times 0} = 0$. That is, the average price of water by the geometric method would be its minimum price." *Ibid.*, pp. 180–181.

ratios, and that, hence, the proper method of averaging ratios was the geometric.[1] But this throws very little light on the economic end to be sought by the index numbers.[2]

Recently, however, a remarkable, painstaking, and elaborate study of the whole question of averages and weighting has been made by Mr. Walsh.[3] After some preliminary study of the meaning of value, he sets out to find a measurement for the average variation of prices in the actual market. In the discussion of the proper method of computing averages, he comes to a conclusion in favor of the geometric mean. The end to be gained is to ascertain the varying exchange value of money as expressed in goods. To accomplish this purpose, from strictly mathematical reasons (keeping in mind that the harmonic is a reciprocal of the arithmetic mean), he holds that neither the arithmetic nor the harmonic mean is correct:

Walsh favors geometric mean.

> "It is plain that when a is becoming equal to b it must pass through the mean between them, that is, it must fall first *to* the

[1] Bowley (Elements of Statistics, p 128) says· "The influence of large numbers is diminished and of small numbers is increased, when the geometric mean is employed instead of the simple average." (Cf. also Edgeworth, Report British Association, 1887, p. 283.) Bowley also (p. 223) enforces Edgeworth's view that the geometric mean has the special advantage that its results are independent of the year chosen as the base.

[2] "Suppose that we had to ascertain the weight of a very large and heavy mass by means of a balance which was difficult to operate and known to be erratic and inaccurate. Two methods of procedure might be followed. We might divide the mass into a large number of particles, weigh these, and obtain our answer by adding the weights of the several particles arithmetically. This method would be somewhat analogous to the consumption index number. On the other hand, if the error of the scale was not known to be of a specific kind, we might weigh the whole mass a large number of times and take as our answer the average of the several readings of the scale. In the latter case each reading would be an independent answer in itself, no weights would be employed, and the geometrical mean, in accordance with previous experience in such work and with certain accepted scientific principles, would be preferable to the arithmetic mean. The latter operation is more closely analogous to the index number of Jevons and indicates clearly the different rôle of the price variations in the two methods." T. S. Adams, Jour. Pol. Econ., Dec., 1901, p. 23.

[3] C. M. Walsh, The Measurement of General Exchange Value (1901). The general argument for the geometric mean is given in chap viii This volume is an

mean and then *from* the mean; and when b is becoming equal to a, it must pass through the mean between them, that is, it must rise first *to* the mean and then *from* the mean.

"Therefore, if the mean be the arithmetic, the approaches of a and b *to* this mean are harmonic variations, and their departures *from* it are arithmetic variations.

"If the mean be the harmonic, the approaches of a and b to this mean are arithmetic variations, and their departures from it are harmonic variations.

"But if the mean be the geometric, both the approaches *to* it and the departures *from* it are geometric variations." [1]

Mr. Walsh insists that our problem has two aspects: (1) price variations of goods in gold, and (2) variations of the exchange value of gold in goods. If we use the arithmetic average for (1), then we must use the harmonic average for (2), which is its reciprocal; if we use the arithmetic average for (2), then we must likewise use the harmonic average for (1). It is, however, only the geometric average which can be used with the same arguments on both sides of the problem.[2]

This author concludes that, because of a deficiency of methods hitherto used, the great problem of measuring the average variation of prices in the actual market, where the movement of prices and the volume of business is haphazard, cannot be regarded as yet satisfactorily solved. The end to be attained is a real one, but the means applied are not yet perfect. The variation in the exchange value of money is a true one, but it has not yet been accurately measured by existing methods of averaging.

unusual and thorough examination of the questions of averages and weighting by a mathematician. It is not, however, always comprehensible by the lay reader.

[1] *Op. cit.*, p. 531.

[2] *Ibid.*, chap. viii, especially p. 245, § 8. Also, exchange values and prices, he thinks, are kinds of things which cannot sink below 0, but which can rise infinitely. Therefore the geometric mean is the only one applicable to such cases, because in them there could be no arithmetic or harmonic compensation. See p. 248.

Laspeyre's defence[1] of the arithmetic average as against Jevons has received considerable support:

"The geometric mean expresses neither the depreciation of commodities or appreciation of money, nor the appreciation of commodities or depreciation of money — that is, according to Jevons, increase or decrease in its 'potency in purchasing other articles.' Let us retain the example used by Jevons. Here, after the change in price of cocoa and cloves, the same sum of money has not the same purchasing power as before, but a smaller one, and exactly so much smaller as is indicated by the arithmetic mean. If a certain weight of cocoa (say 1 cwt.) previously cost 100 thalers, and a certain weight of cloves (say 1 cwt.) also cost 100 thalers, and the price of this amount of cocoa rises from 100 to 200 thalers, and that of the cloves falls from 100 to 50, then 200 thalers no longer have the same potency in purchasing cocoa and cloves. For this sum the purchaser procures only ¾ cwt. cocoa (= 150 th.), and 1 cwt. cloves (= 50 th.), or he procures 1 cwt. cocoa (= 200 th.) and no cloves at all. The purchasing power is now ¼ less, that is, the purchaser must add ¼ in order to get the same quantity; or the 250 thalers are now by ¼ (50 th.) less worth than formerly. Exactly this is expressed by the arithmetic mean $\frac{200+50}{2}=125$; 125 thalers have only the same purchasing power as 100 before, or 250 only the same as 200 before. Money has depreciated 20 per cent; commodities have risen 25 per cent. What is true of the average of two commodities, is true also for any number of commodities."

Laspeyre's argument against the geometric mean.

In answer to Laspeyres, Walsh[2] insists that one can buy the same mass (*i. e.*, weight, in this case) of cocoa and cloves combined, although in different combinations, with the same sum of gold:

"Laspeyres thus found fault with the geometric average for indicating constancy in the 'potency in purchasing' under the

[1] Hamburger Waarenpreise, 1850-1863, etc., in Jahrbücher für National oekonomie und Statistik, 1864, B. III, pp. 81–118. Cf. *ibid.*, 1871, B. XVI, pp. 296–314. The quotation above is a translation by Walsh, p. 267.

[2] Pp. 267–268.

given conditions, because these conditions permit us with one whole sum, 200 thalers, to get at the second period only 1 cwt. cocoa and no cloves, that is, a smaller quantity than before, which fact he took for an indication that the 'potency in purchasing' was smaller, to which came the added evidence that more money is required at the second period to buy the 1 cwt. of each article. He omitted to state that these conditions permit us at the later period to buy 4 cwts. cloves and no cocoa, that is, this time a larger quantity than at first, and one just doubles, as the other was half. Had he done so, the indication of depreciation would have been no stronger than that of appreciation. And he probably failed to see that under these conditions we could at the first period purchase with 66.66⅔ thalers ⅔ cwt. cocoa and with 133.33⅓ thalers 1⅓ cwts. cloves, or 2 cwts. with 200 thalers; and that at the second period we could purchase with 133.33⅓ thalers ⅔ cwt. cocoa and with 66.66⅔ thalers 1⅓ cwts. cloves, that is, exactly the same quantities of cocoa and cloves, amounting to 2 cwts., with the same total sum of money, 200 thalers."

Walsh answers Laspeyres.

When Walsh adds,[1] in conclusion, that, "the price of at least one class rising and the price of at least one class falling, no matter how large or small these variations be, it is possible by spending constant sums of money on the different classes, with the same total sum to purchase at both periods the same total quantity of goods," he must admit, of course, that the purchaser, because of the changes in price, does not obtain the same satisfactions or utilities in the second period as in the first. If, initially, the purchaser with 200 thalers bought 1 cwt. of cocoa plus 1 cwt. of cloves, then if, after the change in price, the purchaser can buy only 1 cwt. of cocoa (supposing the same amount of cocoa to give still the same satisfactions), he cannot obtain any satisfaction at all from cloves, because the 1 cwt. of cocoa took up all his money. Under the circumstances, it is evident that the purchasing power of money over satisfactions, at least in their former relations, has diminished.

Defect in Walsh's position.

[1] P. 269.

It certainly is not the same. The geometric average does not express the whole truth of the economic situation. And if the economic purpose be kept in view, it does not seem that Mr. Walsh has shown that the geometric mean is the right instrument to be used for the given purpose. A change in the relative quantities of goods obtainable for the same sum of gold, when implying a change in satisfactions, is evidently a part of the concept we have in mind when speaking of a change in "purchasing power."

Change in value of money should regard satisfactions.

A change of prices, where many goods are affected, shows, in fact, only a great variableness in the general purchasing power of money. It follows that the general exchange value of money should not be measured by the mere quantity (*e. g.*, the same aggregate weight) of several goods that a given sum can purchase at each period; for a great variety of the elements making up the same total mass quantity can be purchased at the two periods with the same sum of money. Regard should be had to the change in the satisfactions obtainable at the two periods with the same sum of money.

For certain purposes — provided these are clearly indicated by the statistician[1] — no doubt a geometric mean may be wholly legitimate; but, for our study of the changing value of money as shown by prices, the open question is, whether the object to be attained by the tables is not practically accomplished by the simple arithmetic, rather than by any other mean. On the whole, the preponderance of experience in the past has led to a general use of the arithmetic mean.[2]

[1] Cf. Walsh, *op. cit.*, p. 244.

[2] To find the "median," the items of the group are arranged in ascending order of magnitude, and the item half-way up the list is the median. Of the five items, 75, 90, 95, 115, 125, the median is 95. It is not affected by the undue weight of exceptional entries; can be found when information is not exact; and is applicable to cases (like the average intelligence of boys) in which the quantities are not capable of definite measurement at all. On the other hand, the median may be totally removed from the type. Bowley suggests (p. 224) that if the median had been employed in the Economist table the violent fluctuations in the index numbers due to cotton would have been avoided. Cf. Bowley,

§ 3. Many writers have seen, however, that the assignment of equal importance in a list of prices to articles which greatly vary in the amount of money laid out on them, must lead to error. Abstract reasoning by the mathematician has in addition shown this to be true. Undoubtedly some coefficient of quantity ought theoretically to be introduced in making up the index number in order to give different articles the weights which conform to their relative importance in the actual transactions of the market.

Theory supports a coefficient of quantity.

In tables containing a limited number of commodities, the theoretical requirement of a coefficient of quantity is easily apparent. For instance, the average price of wheat alone, even at the same time, will vary according as we include all the quantities sold at different prices. If 5 bushels are sold at 60 cents, and 20 bushels at 50 cents, the average price is not correctly expressed by simply averaging one bushel at 60 and one at 50 cents, or 55 cents; because

5	bushels	× .60 =	$3.00
20	"	× .50 =	10.00
25	"	× .52 =	$13.00

In this case 50 cent wheat appeared 20 times, and had more weight in fixing the average price than the 5 bushels of 60 cent wheat.

In quoting varying prices of the same article at different periods, the same principle holds when we propose to cast up the average which includes all these periods. If more wheat is sold in October than in March, then the October prices will have more weight than the March prices in determining the average price for the year. Suppose wheat sold in January at 80 cents, in February at 85, in March at 90, in April at 86, in May at 82, in June at 81, in July at 83, in August

Elements of Statistics, pp. 124–126; Edgeworth, Reports of the British Association for the Advancement of Science, 1888, 1889, and Journal of the Royal Statistical Society, June, 1888, etc.; and Padan, *op. cit.*, p. 130.

For the "mode," cf. Bowley, pp. 118–124. For a general summary of the function of averages, cf. *ibid.*, p. 130.

at 80, in September at 74, in October at 60, in November at 65, in December at 70; the simple unweighted annual average is 78 cents. But if ten times as much wheat was sold in October as in other months, the weighted average, giving October ten times its former importance, would be only 70.3 cents.[1]

Passing to the relative importance of different commodities, it is apparent that indigo does not enter into the total transactions of a country in the same pecuniary proportion as wheat or cotton. But an unweighted average would allow changes in the price of indigo the same importance on the annual index number as wheat or cotton. This, of course, would not record correctly the true state of affairs in the average of prices, — at least not absolutely. If wheat sells at 70 cents a bushel, and indigo at $1 a pound, the unweighted average is 85 cents. But if 100,000,000 bushels of wheat, and 100,000 pounds of indigo are sold, the average is changed as follows:

100,000,000 bu.	× .70	= $7,000,000
100,000 lb.	× 1.00	= 100,000
100,100,000	× .7092+	= 7,100,000

and the weighted average is near the lower price, or .7092 cents.

Bowley gives a mechanical analogy[2] which states the problem in another form:

> "Suppose a uniform weightless rigid rod graduated in 100 equal divisions, and equal weights hung at the 77th, 60th, 90th, 40th and 85th divisions[3] from one end; the rod will then balance at a point corresponding to the unweighted average, 70.4 intervals from the same end. Now, suppose the equal weights replaced by weights of 7, 1, 3, 2, 4 lbs. respectively,[4] and the rod will balance at a point corresponding to the weighted averages 75.8 intervals from the same end.

[1] Cf. Padan, *op. cit.*, p. 183.

[2] *Op. cit.*, p. 112.

[3] To correspond with the index numbers of five commodities used in an illustration by Mr. Bowley.

[4] Corresponding to the relative importance assigned to each commodity.

The further any particular mass is moved, or the heavier it is, the more the centre of gravity will be shifted; and this clearly corresponds to the influence we should wish the various prices to have in the statistical problem."

§ 4. Based on these general considerations, the weighting of price tables has been given no little discussion in the literature of prices. Theoretically, the argument in favor of the accuracy obtained by weighted index numbers seems unanswerable, but we shall later[1] see that they are not only impracticable, in any extended list of prices, but that they are of no appreciable practical importance, if a sufficiently large number of articles are quoted.

Practice and theory in weighting conflict.

The various proposals for weighting the prices of different articles in tables of prices, according to their relative importance, are not based on the same test of importance; they assume different coefficients of quantity, supposedly based on the different purposes to be obtained. Here, as in the case of computing averages, the question is not one to be settled mathematically; since, given the end in view, a coefficient of quantity for one end may be different from that adopted for another end. Therefore a method adjusted to one purpose may be correct; but it may have no value for another purpose, and certainly no general significance.

In some of the tables of American wholesale prices,[2] compiled under the direction of Professor R. P. Falkner, he has employed a method of assigning a coefficient to different articles in proportion to their importance in the budget of expenditures of families in moderate circumstances. This budget method was built on statistics of family expenditures collected in the Seventh Annual Report of the Bureau of Labor, and in the contemporary report of Professor Falkner on Retail Prices (1893). Food, clothing, rent, and even some details of each head were furnished. On this information articles in a table of prices were given an

Falkner's budget method.

[1] See *infra*, p. 161.

[2] Aldrich Report VI.

importance by a coefficient of quantity in proportion to the expenditure on each article in the budgets. Even with the greatest skill and industry, dealing with as large a number of families as 232, and having the details for each item of expenditure, the practical results were far from satisfactory. It was found to be necessary to make arbitrary assignments to certain prices which militated against the validity of the result.[1] By this weighting process, however, although largely artificial, 68.6 per cent of the expenditure was included, and a weighted list of prices was made out, which was compared with one computed by a simple unweighted arithmetical average.

Apart from the practicability of the budget method, its purpose must be taken into account. On this point I cannot do better than quote Professor Taussig:

Purpose of the budget method.

"If we wish to know whether any particular class in the community is better off or worse in consequence of changes and prices, we must make the inquiry with reference to the distribution of the expenditures of its members. More particularly, if we wish to know how

[1] On this point Professor Taussig says:

"Rent is a large item in expenditure; but how much of this was for bricks, wood, glass, it is impossible to say. A considerable expenditure among the selected families had not been itemized at all, but simply set down as miscellaneous in the budgets. This was taken into account, nevertheless, in making up the weighted average, by assuming that one-half of this miscellaneous expenditure was for the direct purchase of commodities; and by assuming further that these commodities, already assumed to be directly purchased, consisted of all the articles in the list which had not already found a place in the specifically itemized articles of the budget. The price of all these articles not traceable in the budget's statements were yet given an importance in forming the general average, determined by the proportion which one-half of the miscellaneous expenditure had in the total expenditure of the family. These other articles, it may be noticed, included all the metals and implements whose prices were quoted, all the drugs and chemicals, all the lumber and building materials. Here again we have an artificial element of considerable importance, a supposition and not a fact, in the distribution of expenditure and the consequent weighting of commodities, which shows how difficult it is to carry out into practice the budget principle of weighting commodities according to their importance." Yale Review, Nov., 1893.

those in the community who earn their bread by manual labor are affected by the movement of prices, we must inquire whether their money income, as distributed in one direction or another, yields them more at one time than at another. Proceeding from the social point of view, it might be possible, from a given set of figures, to conclude that the expenses of living for the workingman had risen; while yet, from the simple monetary point of view, the same figures might make it clear that prices had fallen. Food, for example, forms a large part — 40 per cent — of the total expenditure of the workingmen's families whose budgets were chiefly used by Professor Falkner. A rise in the price of food, measured by its importance in their budget, might cause their expenses of living to rise. Among the well to do and leisured classes, however, a rise in the price of food would be of less importance, and might easily be overbalanced by a fall in the price of other things. The well to do class might be a comparatively large part of the population, and might expend two-thirds of the total income. Under such conditions, the method of total expenditure would rightly show that general prices, considered with reference to the importance of different commodities, had fallen. Yet the budget method would show that the expense of living of that class in the community whose welfare most enlists the interest of the social philosopher, had not fallen, but risen." [1]

French system of weighting according to quantities imported and exported.

Another method of weighting by a coefficient expressing respectively the proportion which the total money value of each article in the table bears to the total expenditure of the country has been used by the French Commission des Valeurs de Douane since 1846. This method has been associated with the name of R. H. Inglis Palgrave, by whom attention was called to it.[2] The description of it was given by M. Say as follows:

[1] Yale Review, Nov., 1893.

[2] In a masterly study prepared for the Royal Commission on Depression of Trade and Industry, Third Report, Appendix B, p. 361. The whole memorandum covers pp. 312–390. Mr. Palgrave also applied this system of weighting to the "Economist" table of twenty-two articles. Cf. pp. 328–330, 337.

"The duty assigned to the Commission was that of reducing the weights or the quantities of the goods included on the registers of the customs to values, and this is still its duty. This is now more important even than it ever has been since the system of specific duties has become more generally applied. But the articles specified on the registers of the customs are subdivided into different qualities, and each quality has a value proper to it.

"There are, for example, woven goods which are lumped together under the same heading, and the values of which, reckoned by the kilogramme, vary sometimes from unity up to five times as much.

"There are a great many other commodities in the same position. What, for instance, is the value of tea? This is to be had at all prices.

"As late as 1846 the unities or kilogrammes were reduced into values by giving almost always the average price, no reference being made to the quantities. If woven goods at 2 francs the kilogramme were included in the same lot with woven goods at 4 francs the kilogramme, they were registered as forming an average price of woven goods at the figure of 3 francs $= \frac{2+4}{2}$.

"But, after 1846, at the recommendation of M. Legoutet, President of the Chamber of Paris, and of M. Natales Rondot, the true averages have been calculated by taking account of the quantities.

"An import, I will suppose, for example, having taken place of 1000 kilogrammes of woven goods, it has been endeavored to ascertain how much of this was at 2 francs, how much at 3 francs, how much at 5 francs, &c.

Supposing	500	kilogrammes at	2 francs
	300	"	3 "
	200	"	5 "

an average was struck at 2.90 francs the kilogramme of goods.

"You see that the average values vary accordingly, as the import consisted of this or of that article.

"The following year there might be a rise, I will suppose, of 10 per cent on each description, —

There being	800	kilogrammes at	2.20 francs
	100	"	3.30 "
	100	"	5.50 "

and the average price would come out lower at 2.64 francs, a drop of 10 per cent. on the average price, corresponding to a rise of 10 per cent. on the real price (the division of the quantities being made approximately according to the opinion of the Commissioners)."

The theoretical soundness of this method of weighting depends upon the object in view. It has been claimed that it is perfect for the purpose of discovering changes in the purchasing power of money. But when we fully comprehend what is meant by the purchasing power of money, this does not necessarily follow. The assignment of weight in proportion to the quantity of transactions unconsciously assumes the truth of the theorem that the value of money is directly in proportion to the money work created. If, however, the uniform exchange value of money carries with it an idea of its ability to purchase the same quantity of the same goods (so that the proportion of satisfactions is undisturbed), then a change in the proportions in which a given article enters into the trade of the country as a whole may not be at all the same as the proportions of actual consumption as between different classes. For instance, if the price of meat is such that class A can buy it once a week; then, if that class increases in number by 5,000,000 (without affecting the price of meat), the total trade of the country in meat is larger, but the members of the class individually will not have found any difference in the value of money. In fact, the purchasing power of money differs for classes having a different order of consumption, and changes in price will affect them unequally.

Soundness of weighting according to trade importance.

The practical difficulties, however, in the way of applying this method are such as to put it out of the running. No satisfactory data exist by which the total expenditure of a country on many separate articles can be ascertained with anything like the accuracy

Impracticability of this method.

needed for price tables. Possibly the expenditure on a few staple articles could be found, but their number would be so few that no table of importance could be accurately constructed on this principle.

In fact, the attempt to discover a correct means of weighting according to the relative quantities consumed is generally impossible, because these amounts are constantly changing from time to time. Indeed, as has been well said, "the familiar weighted index number is merely the old 'tabular standard' in operation." [1]

Another method of weighting was adopted by Mr. Giffen,[2] in order to determine changes in the exchange value of money.

Mr. Giffen's method.

His index numbers are ratios between (1) the quantities of each article consumed in the initial year, taken at the prices of later current years, to (2) the same quantities of each article, taken at the prices of the initial year. This was a method of comparing the relative values of goods at different times with the values of the corresponding goods in the initial year. The same practical objections would obtain against this as against the previous method.

§ 5. Mr. Edgeworth[3] indicates the various purposes for which tables of prices and index numbers are to be constructed as follows:

1. For the just discharge of deferred payments, or rents, running over long periods of time.

2. As a measurement of money incomes in different places, either for individuals or nations.

3. To enable the historian to compare the value of money in the past with the present.

[1] Cf. T. S. Adams, *op. cit.*, p. 8, who finds the weighted index number and the tabular standard defective as a measure of the purchasing power of money, and for the same reasons.

[2] Report on Imports and Exports, 1885, Table V. This method has long been adopted in other price tables. See *infra*, p. 190.

[3] Reports of British Association, 1887, 1888, 1890, and article on "Index Numbers" in Palgrave's Dictionary.

4. To measure the injuries to industry caused by variations of price, and to obtain the correction to be applied to the currency.[1]

Various purposes of index numbers, and their constituents.

Necessarily, the constituents of the index numbers depend upon the answers to the following questions:

(*a*) What articles should be selected?

(*b*) How should the prices be ascertained?

(*c*) How should we combine the ratios between prices at current dates with those of the initial date?

Mr. Edgeworth points out that the answers to be given to these questions would differ according to the purpose in mind. If a multiple standard for deferred payments be desired, then the quotations should cover articles of personal consumption rather than of materials or implements; should include personal services, but not labor in general; should be retail prices; and should be weighted according to their importance in consumption. If a labor standard be proposed, — although he admits that there are no suitable statistics for that purpose in existence, — it should include quotations of all the principal kinds of services rendered to the community during the initial and current years.

Giffen and Edgeworth abandon weighting.

In truth, the actual method of weighting does not seem to so good a mathematician as Mr. Edgeworth[2] to be of much practical importance, and he quotes with approval Mr. Giffen's conclusion[3] of the whole matter:

> "The articles as to which records of prices are obtainable being themselves only a portion of the whole, nearly as good a final result may apparently be arrived at by a selection without

[1] This purpose seems to depend wholly upon the acceptance of the quantity theory; for it presupposes that variations of price can be regulated by working upon the currency, supposedly on the quantity of it, or on the forces solely affecting the value of the standard.

[2] Edgeworth concludes: "In fact, the index number for 1885, as determined from the same data by seven different methods, proved to be 70, 70.6, 73, 69, 72, 72, 69.5." Report British Association, 1888, p. 211. Cf. article "Index Numbers," Palgrave's Dictionary.

[3] Report of the British Association, 1888, p. 184.

bias, according to no better principle than accessibility of record, as by a careful attention to weighting."

In general, the theoretical discussion on the proper method of weighting receives a quietus by the practical results drawn from both weighted and unweighted numbers; and incidentally the arithmetic average also receives a support from the same experiments. By describing a line based on arithmetic unweighted index numbers, it is found, curiously enough, that it shows very little deviation, on the whole, from one based on numbers weighted for certain purposes.[1]

Number of articles more important than weighting.

It is probable that any real errors due to giving an article more than its real importance in an unweighted arithmetic average is overbalanced, and compensated for, by including a sufficiently large number of articles. It is more important to have a large number of goods quoted in the price tables than to attempt accurate calculations of the proper weights to be attached to each article.[2] So that it may be concluded with some security that in tables containing as large a number of articles as Soetbeer's and Falkner's the unweighted averages give us practical results as near to accuracy as is obtainable.[3] Moreover, it is to be re-

[1] See Diagram XVI, *infra*. Cf. Taussig, *op. cit.*, p. 27. Also, T. S. Adams says: "Indeed, this result might be expected *a priori*. As we know of no connection between the price variation and the importance of a commodity — the prices which rise are as likely to pertain to important commodities as those which fall, and *vice versa* — it is to be expected that the weights given to price variations below the arithmetical mean will about offset those given to price variations above that mean, and that the weighted average will be substantially the same as the arithmetical average." Jour. Pol. Econ., Dec. 1901, p. 7.

[2] There is a consensus among statisticians upon this point, as expressed by Bowley: "The precision of an average increases with the number of like quantities averaged." *Op cit.*, p. 219.

[3] Professor Falkner holds that "where the price movement is downward the weighted average is apt to record a higher price than the simple average, and that where the price movement is upward the weighted average records, in the main, lower prices than the simple average. This is due to the fact that in all weighted averages food products assume a larger influence than in the simple averages, and that food products, taken in the aggregate, fluctuate in price from year to year less noticeably than other commodities." Bulletin of Labor Department, March, 1900, p. 268.

membered that such tables of prices aim not at absolute but at relative results, and that at the best a list of prices can provide information mainly as to the movement in the price level relatively to a given starting-point. Hence any fairly sound method of weighting, consistently carried out through the whole period, would show the same relative changes of price. These considerations doubtless account for the unexpected coincidence of weighted and unweighted lines in the same period based on the same data.

The proper selection of the articles to be included in the tables, also, is really of more importance than the weights attached to each commodity. It goes without saying that the prices of different groups of commodities are affected by different sets of forces: the product of extractive industries would doubtless give a series of index numbers having a different tendency from that of manufactured goods. How true this is may be seen by examining the lines for the different groups in Soetbeer's Hamburg tables (see Diagram XII). Hence index numbers, like Sauerbeck's, made up largely of materials (see *infra*, p. 185), would not ordinarily give the same general movement as those made up mainly from manufactured goods, much less would they give a true record of the changes of prices in general.

Selection of articles equally important.

§ 6. A rise or fall of prices is, of course, never felt equally by all goods. One article may fall or rise in greater proportion than another; or one may fall and another may rise. From the point of view of the purchasing power of money, several self-evident things must be kept in mind. It cannot be said that the purchasing power of money remains the same, even if the given amount of money buys the same total number of quantitative units of several goods as before, whenever this total number is distributed in different proportions. For instance, to repeat a former illustration, if wheat and oats had each formerly sold at 50 cents, and if wheat then rose 100 per cent, and oats fell 50 per cent, then $100, which

Changes of purchasing power with changes of prices.

formerly bought 100 bushels each of wheat and of oats, would not, after the supposed change of price, buy the same relative number of bushels of each. Since $100 would buy only 100 bushels of wheat at the new price, nothing would be left for oats. But it is also true that the same $100 would buy, in all, 200 bushels of wheat and oats taken together, at the new prices: for example, 66⅔ bushels of wheat at $1. per bushel ($66.66⅔) and 133⅓ bushels of oats at 25 cents a bushel ($33.33⅓). By reason of the change in price, less wheat but more oats could be bought, and yet the buyer could get a total of 200 bushels, as before, of both wheat and oats. But it is not necessary to argue that, in such a case, the purchasing power of money remains the same as before; because, after the change, the money buys a different allotment of satisfactions: the utility coming from the consumption of wheat is lessened by one-third; and the utility coming from the consumption of oats is (other things being equal) possibly increased by one-third. To assume that, in this case, the purchasing power of money remains the same is to assume that the utility of wheat is an exact equivalent to the consumer of the utility of oats — an evident falsity. To the class mainly using wheat, money has lost in purchasing power; to the class mainly using oats, money has gained in purchasing power. It would not be correct in such a case, with Walsh, to decide that "the indication of constancy is as strong as the indication of depreciation."[1]

When the value of money has changed.

And if we mean by the purchasing power of money a control over the same quantity of the same quality of goods, then the exchange value of money is constantly undergoing change. For seldom or never is there a time when there is no change in relative prices, and consequently in the relative proportion of satisfactions for which a given sum of money will exchange.[2] Such a change,

[1] Walsh, *op. cit.*, p 268.

[2] Of Falkner's 99 American articles (1890–1900), 13 fell below 70; 20, below 80; 26, below 90; 21, below 100; 11 rose under 110; and 8 rose above 110. Bulletin, etc, p. 264. In the Aldrich Report (1860–1891), of 223 commodities, 17 fell

therefore, in relative prices is equivalent to an alteration in the exchange value of money, whether the general movement be up or down. On the whole, however, if at any time a given weight of the money metal buys more or less units than before of the same kinds of things (and in the same proportion), then it may be said that the value of that money has risen or fallen to the group of consumers concerned; if a given weight of the metal secures more or less of accustomed satisfactions in certain proportions than before, then only can we say that its value has risen or fallen.[1] The general purchasing power of money carries with it the idea of the same relative proportions of expenditure for consumption to be obtained by the same sum of money. Looked at from the point of view of the purchasing power of the community's income, a rise of 1 per cent in the price of bread may be much more important than a fall of 50 per cent in the price of pepper. A series of index numbers constructed on the basis of an unweighted arithmetic average pay no heed to such relative importance. They certainly cannot express accurately alterations in the general purchasing power of money, since changes in relative prices inevitably cause changes in relative proportion of expenditure. If, however, it were once granted that changes in price were natural and healthy phenomena and generally quite independent of changes in the quantity of the media of exchange, less disquiet would doubtless be caused by a fall of prices expressed in index numbers on the ground that they measure changes in the exchange value of money.[2] The significance of this whole

Change in value of money in itself not important except as regards debtors and creditors.

50 per cent or more; 64 fell from 25 to 50 per cent; 48 fell from 10 to 25 per cent; 24 fell less than 10 per cent; 9 were uniform; 10 rose less than 10 per cent; 16 from 10 to 25 per cent; 19 from 25 to 50 per cent; 11 from 50 to 100 per cent; 2 from 100 to 200 per cent; and 3, 200 per cent or more. Aldrich Report, I, p. 56.

[1] Cf. with this the definition of T. S. Adams (*ibid.*, p. 10): "The purchasing power of money is determined by its command over a certain commodity-list, composed of different quantities of different commodities."

[2] For the discussion of the advantages and disadvantages of rising and falling prices, see *infra*, chap. xi, § 4.

discussion, in my judgment, is related to the operation of a standard of deferred payments when changes of price have originated mainly from influences affecting goods.

Erroneous theory applied to price records.

Many of the suggestions as to the measurement of prices have a squint toward some means of arriving at changes in the value of money, — and the causes thereof, — and they seem to imply the acceptance of the quantity theory of money. That is, the aim seems to be to ascertain how much "money" is laid out on any one article, or group of articles, in relation, for instance, to the total expenditure of a country, and in this way to modify (by various weighting devices) the index numbers which express changes in the purchasing power of money. Unconsciously, in the arraying of facts, an assumption as to the cause of changes has crept in; because, if prices of goods are regulated by the amount of money offered for goods, then it would be important that the index number should show how far articles are making a generally increased or decreased demand upon the money supply. As an expression of the purchasing power of the money metal, as will be shown later, the amount of the media of exchange given for goods has little or nothing to do with causes of price. In merely recording data, we should beware of entangling the simple facts with *a priori* explanations of causes affecting price.

No general results assignable to movement of prices.

In conclusion, while unwilling to admit that the budget method employed by Mr. Falkner is, for any other class than the one from which the budgets were supplied, a proper means of measuring the exchange value of money, it must be seen that it has a more scientific basis than is usually assigned to it by some critics. A change in general prices may affect some articles differently from others; the prices of goods consumed by the rich may not be changed, but those of the working-class may be largely affected; hence it follows that money incomes may have changed in purchasing power for the latter, but not for the former. In short, it is not possible to predicate anything very practical from a general movement of prices, unless we

THE PRICES OF VARIOUS ARTICLES AT DIFFERENT TIMES.

Year of Our Lord	Wheat per Bushel	Miscellaneous Articles: Cattle in Husbandry: Horse	Ox	Cow	Sheep	Hog	Poultry: Goose	Hen	Cock	Butter per Lb.	Cheese per Lb.	Ale per Gal.	Small Beer per Gal.	Mean Depreciation from these 12 articles.	Beef and Mutton per Lb.	Labour in Husbandry per Day.	Depreciation of Money According to the Price of: Wheat	12 Miscellaneous Articles	Meat	Day Labour	Mean of All
1050	s. d. 0 2¼	£ s. d. 1 17 6 83	£ s. d. 0 7 6 20	£ s. d. 0 6 0 37	£ s. d. 0 1 3 29	£ s. d. 0 2 3 38	s. d.	s. d.	s. d.	d.	d.	s. d.	d.	42	d. qr.	s. d.	10	42			26
1150	0 4¼	0 12 5	0 4 8¾		0 1 8	0 3 0		0 3								0 2					
1250	1 7¾	1 11 0	1 0 7	0 17 0	0 1 7		1 0	0 3	0 4½												
1350	1 10½	0 18 4 43	1 4 6 66	0 17 2 106	0 2 7 61	0 2 6 45	0 9 75	0 2 24	0 3¾ 31					56		0 3	100	56		75	77
1450	1 5		1 15 8	0 15 6	0 4 11½	0 5 1	0 6¾									0 3¾					
1550	1 10½	2 2 0 100	1 16 7 100	0 16 0 100	0 4 3¾ 100	0 5 6 100	1 0 100	0 8½ 100	1 0 100	5 100	2 100	0 1½ 100	1 100	100	1 0½	0 4	100	100	100	100	100
1600	4 0½											0 4	2		1 2	0 6					
1625	4 11						2 0		1 6							0 6½					
1650	5 6											0 4	2			0 6½					
1675	4 6	5 10 0 250	3 6 0 184	2 17 0 345	0 11 0 256	0 14 0 254	3 0 300	1 3 182	1 3 125	4½ 90	2 100	0 8 530	2½ 250	239	1 3½	0 7½	246	239	166	188	210
1700	4 9½											0 10	3								
1720	4 4½											1 0	3		2 2	0 8					
1740	3 8	10 0 0 478	8 0 0 437	7 7 0 384	1 6 0 602	1 15 0 634	3 6 350	1 6 218	1 6 150	9 180	3½ 175	1 0 800	3 300	434	3 0	0 10	197	434	266	250	287
1760	3 9¾	14 0 0 667	8 10 0 485	7 0 0 874	1 7 0 626	1 15 0 634	5 0 500	1 10 266	1 10 183	10 200	5¼ 262	1 2 930	3 300	492	4 2	0 11	203	492	400	275	342
1780	4 5½															1 2					
1795	7 10	19 0 0 904	16 8 0 890	16 8 0 2000	1 18 0 882	5 8 0 1960	3 0 300	1 6 218	1 6 150	11¼ 230	5 250	12⅝ 969	2¾ 275	752	5 3	1 5¼	426	752	511	436	531

| Mean Appreciation by Interpolation. | | | | | | | | | | | | | | |

have a definite class of articles in mind, such as food, manufactures, etc., or the consumption of special classes. Again, in dealing with changes in the exchange value of money, we must insist on the point, that all depends upon what special purpose we have in mind. One cannot dogmatize without discrimination upon the welfare of all classes of society, merely from reference to general averages expressed in index numbers.

§ 7. Having thus, in a general way, presented the problems of the measurement of prices, we may now pass to a brief recapitulation of the tables of prices which have in fact been collected. It may be thought useless to pause over the earliest historical attempts of this kind, since they were necessarily brief and incomplete; but, on the other hand, an account of early tables of prices will at least show, without possibility of doubt, how impracticable it would be to base any important conclusions as to the value of money in the periods before 1850 on any tables of prices which had appeared before that year.

RICE VAUGHAN

I

Doubtless the first attempt to measure the exchange value of money in goods and labor was that of Rice Vaughan[1] (1675). He took 25 Edward III. (1352) as the basic year, and prices about 1650 were compared with those of the former. When the prices of corn, cattle, fish, cloth, linen, leather, etc., were considered, he argued that their prices would be so largely affected by causes with which money had nothing to do, such as seasons, imposts, inventions, and the like, that no conclusions could be drawn from them. But common wages, he believed, bore a necessary relationship to the prices of goods; he thus arrived at the change in price

[1] A Discourse of Coin and Coinage, chap. xi, pp. 101–136.

through the change in wages. By statistics he found that wages for common labor had risen in this period to six or eight times the basic rate. Next, having established the debasement of the coinage, in which prices and wages were expressed, at about one-third, he computed that prices had doubled and almost trebled:

> "Now if the Rate of things valued by Money be six times as great as it was in 25 of *Edward the Third*, allowing the values of Moneys to be raised to trebble what they then were by the same names, yet there will be a real Increase of a double Proportion, to what then was of Gold and Silver in weight and fineness, to things valued by them; and if the rate be raised to eight times what it then was, the real increase of the Proportion will be almost trebble to what it then was" (p. 127).

The cause of this rise in prices he explains as follows:

> "The different Proportion which is really grown between Gold and Silver, and the things valued by them, doth principally and indeed solely arise of the great quantities of the said Mettals, which in these hundred years was brought out of the *East* and *West Indies*. Now, although there may be many other causes which may produce this effect, as Scarcity or Abundance of the things valued by Money, *War*, *Depopulation*, and all other Accidents, by which, either these Mettals are exhausted or the things valued by them are consumed or made less useful; yet, as before shewed, all these are temporary and subject to continual variety up and down, and therefore cannot be the causes of a constant effect as this is" (pp. 124–125).

BISHOP FLEETWOOD

II

Bishop Fleetwood, in his *Chronicon preciosum* of 1707, set out to find how much corn, meat, drink, and cloth could be purchased by a perpetual income of five pounds in the years 1440–1460, as compared with the sum needed to pur-

chase the same goods in the later time when he was writing. In his chapter iv he gave the prices from time to time over six hundred years of the following thirty-nine articles:

> Flax, wool, hides, cloth, shoes, ploughs, hay, carts, land, sheep, horses, mules, cattle, swine, goats; fowls, rabbits, pigeons; wheat, barley, rye, oats, beans, peas; wine, malt, ale, beer, spice, wax, almonds, salt, eggs, cheese, milk, figs, raisins, fish and charcoal.

For obvious reasons, wheat is given the most quotations. He furnished a yearly table of wheat from 1647 to 1705 (pp. 125–128), usually two prices being added and halved (p. 129). Moreover, there was provided an average of the price of wheat for twenty-year periods, and also the average for sixty years.

Realizing that the changing content of the coins would affect prices, he went carefully into a statement as to both gold and silver coins, tabulating the gold coins since Edward III. (pp. 20–25) and the silver coins since Edward I. (pp. 52–54), both coming down to Anne.

His conception of the problem, and his method, are contained in the following extracts:

> "For, your Business is to know (as near as you can) what Estate or Summ of Money will *now-a-days* be equal, or equivalent to *five Pounds* (let that be the supposed Summ in this Discourse) in the reign of King *H.* VI. and to this End, your Care will be, to find out how much *Meat*, *Drink*, or *Cloth*, might be purchased in *H.* VI Reign, with V *l.* and then to find out, how much of the Money now current, will be required to purchase the same quantity of *Meat*, *Drink*, and *Cloth*. For, since Money is of no other use, than as it is the Thing with which we purchase the Necessaries and Conveniences of Life, 'tis evident, that if V *l.* in *H.* VI. Days, would purchase 5 *Quarter of Wheat*, 4 *Hogsheads of Beer*, and 6 *Yards of Cloth*, he who then had V *l.* in his Pocket, was full as rich a Man as he who has now XX *l.* if with that XX *l.* he can purchase no more *Wheat*, *Beer*, or *Cloth*, than the other" (pp. 60–61).

> "You must take the Price of every particular Commodity, for as many Years as you can (20, if you have them) and put them all together; and then find out the common Price [*i. e.*, the arithmetical average]; and afterwards take the same Course with the Price of Things, for these last 20 Years; and see what Proportion they will bear to one another; for that Proportion is to be your Rule and Guide" (p. 167).

His conclusion showed that "£5 two hundred and sixty years ago was equivalent to £28 or £30 now." His investigation covered all the information he could find on the value of money and prices of commodities during the Middle Ages in England, as found in the chronicles. He thus opened the field afterwards cultivated by Thorold Rogers.

SIR GEORGE SHUCKBURG EVELYN

III

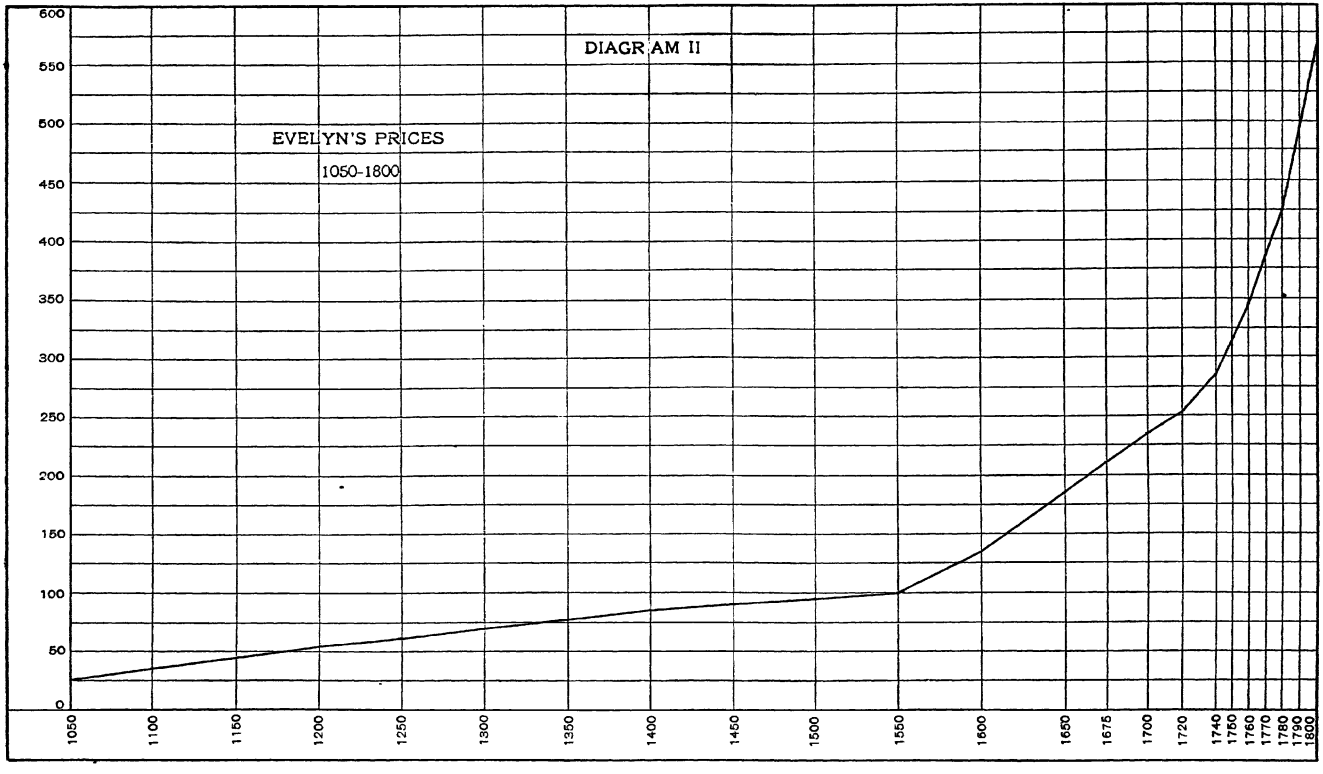
In the Transactions of the Royal Society, Sir George Shuckburg Evelyn,[1] in 1798, devoted two pages to

> "A Table exhibiting the Prices of various Necessaries of Life, together with that of Day Labour, in sterling Money, and also in Decimals, at different Periods, from the Conquest to the present Time, derived from Respectable Authorities; with the Depreciation of the Value of Money inferred from them. To which is added, the Mean Appreciation of Money, according to a Series of Intervals of 50 Years, for the first 600 Years; and, during the present Century, at shorter Periods, deduced by Interpolation."

His general results were

> ". . . deduced from taking a mean rate of the price of each article, at the particular periods, and afterwards combining these means, to obtain a general medium for the depreciation at that period; and lastly, by interpolation, reducing the whole into more regular periods, from the Conquest to the present time."

[1] Of Some Endeavors to Ascertain a Standard of Weight and Measure, pp. 308–309.


DIAGRAM II
EVELYN'S PRICES
1050-1800
600
550
500
450
400
350
300
250
200
150
100
50
0
1050
1100
1150
1200
1250
1300
1350
1400
1450
1500
1550
1600
1650
1675
1700
1720
1740
1750
1760
1770
1780
1790
1800

By inserting in one group twelve miscellaneous articles having weight equally with wheat, meat, and day labor, Evelyn unconsciously introduced a method of weighting.

In the early part of the nineteenth century several other English writers discussed the question of the measurement of the value of money, but I have not introduced the actual results of this work here, because either their tables ran over a very few years, or their lists of prices have been better covered by later tables such as those of Jevons. These writers are: Arthur Young (An Enquiry into the Progressive Value of Money in England, 1812), Joseph Lowe (The Present State of England in regard to Agriculture, Trade, and Finance, 1822), G. Poulett Scrope (Principles of Political Economy, 1833), Henry James (The State of the Nation, 1835), and G. R. Porter (The Progress of the Nation, 1838).[1]

ECONOMIST TABLES

IV

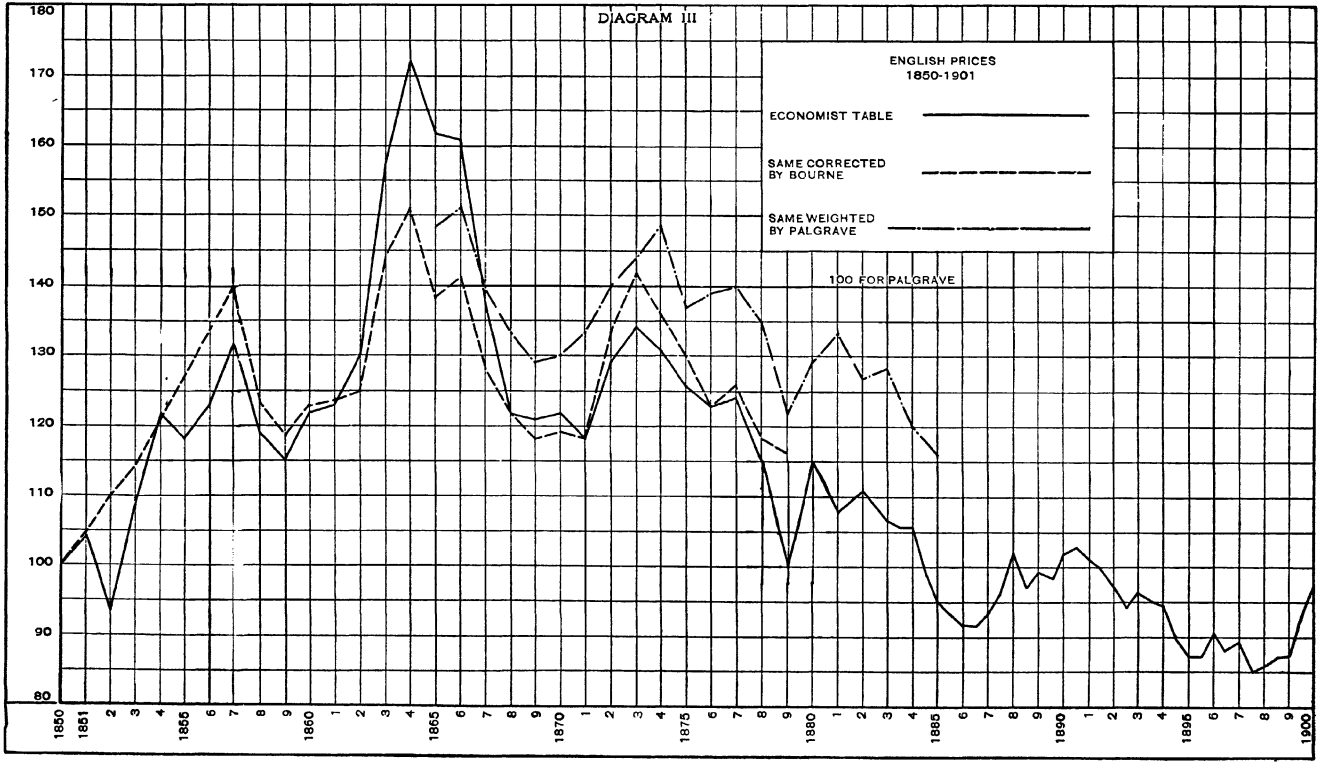
§ 8. The first table of index numbers, and one which has become celebrated, was that begun by Mr. Newmarch for the "Annual Commercial History and Review" of the London *Economist*.[2] The reason for the importance assigned to it is that it was for a long time the only accessible table, and has been continued annually to date (except for 1852 and 1854–1856). Adopting the average price of each article in 1845–1850 as 100, the prices in following years were reduced without weighting to percentages of the initial prices. The sum of these percentages in each year forms the index number for that year. Twenty-two articles being quoted, the basic index number for all is 2200; but division by 22 will reduce the series for subsequent years to average percentages. The articles chosen are:

[1] For a brief résumé of the methods of each, see Walsh, *op. cit.*, pp. 554–556.
[2] Cf. Aldrich, Sen. Report on Wholesale Prices, I, pp. 200–227.

Coffee, sugar, tea, tobacco, wheat, butcher's meat, Surat cotton, raw silk, flax and hemp, wool, indigo, oils, timber, tallow, leather, copper, iron, lead, tin, Pernambuco cotton, cotton yarn, cotton cloth.

Serious objections have been urged against this table: (1) being composed of only a few articles, the assignment

	Economist Table.[1]				Bourne's Table.		Palgrave's Tables.			
					Basis of 1872-77.		Economist on basis of 1865-1869.		Preceding corrected for relative importance.	
	Index Numbers.	Reduced to Per cent.	Corrected by Bourne.	Corrected by Bourne.	Home Prices	World Prices.	Index Numbers.	Per cent.	Index Numbers.	Per cent.
1845-50	2200	100								
1851 Jan. 1	2293	104	103							
1853 July 1	2451	111	114							
1857 " 1	2996	136	140							
1858 Jan. 1	2612	119	123							
1859 " 1	2543	115	118							
1860 " 1	2692	122	123		94					
1861 " 1	2727	124	124		94	113				
1862 " 1	2878	131	125		95	116				
1863 " 1	3492	159	144		109	143				
1864 " 1	3787	172	151		115	170				
1865 " 1	3575	162	138		105	175			2366	108
1866 " 1	3564	162	141		107	132			2434	111
1867 " 1	3024	137	128		98	120	2200	100	2179	99
1868 " 1	2682	122	122		93	116			2058	93
1869 " 1	2666	121	118		90	111			1963	89
1870 " 1	2689	122	119		91	111	1995	91	1975	90
1871 " 1	2590	118	118		90	105	1981	90	2046	93
1872 " 1	2835	129	133	125	101	108	2132	97	2197	100
1873 " 1	2947	134	142	132	108	107	2237	102	2298	104
1874 " 1	2891	131	136	127	103	99	2207	100	2378	108
1875 " 1	2778	126	130	124	99	94	2098	95	2125	97
1876 " 1	2711	123	123		94	95	2044	93	2186	99
1877 " 1	2715	123	126		96	97	2064	94	2205	100
1878 " 1	2554	116	118		90		1910	87	2081	95
1879 " 1	2225	100	106		80		1676	76	1805	82
1880 " 1	2538	115					1918	87	1967	89
1881 " 1	2376	108					1782	81	2054	93
1882 " 1	2435	111					1830	83	1908	87
1883 " 1	2342	106					1755	80	1924	88
1883 July 1	2220	101								
1884 Jan. 1	2221	101					1660	75	1750	80
1884 July 1	2170	98								


DIAGRAM III
ENGLISH PRICES
1850-1901
ECONOMIST TABLE
SAME CORRECTED BY BOURNE
SAME WEIGHTED BY PALGRAVE
100 FOR PALGRAVE
180
170
160
150
140
130
120
110
100
90
80
1850
1851
2
3
4
1855
6
7
8
9
1860
1
2
3
4
1865
6
7
8
9
1870
1
2
3
4
1875
6
7
8
9
1880
1
2
3
4
1885
6
7
8
9
1890
1
2
3
4
1895
6
7
8
9
1900

of equal importance to each permits extraordinary influence on the table by changes in one commodity; (2) the quotations are those of a given day (January 1 or July 1) and not the averages for the year; (3) the list is not large enough to show the general movement of prices; and (4) the commodities are badly chosen, there being four articles of cotton (by which a great distortion in prices was caused in

	Economist Table.[1]				Bourne's Table		Palgrave's Table.			
					Basis of 1872–77.		Economist on basis of 1865–1869.		Preceding corrected for relative importance.	
	Index Numbers.	Reduced to Per cent.	Corrected by Bourne.	Corrected by Bourne.	Home Prices.	World Prices.	Index Numbers.	Per cent.	Index Numbers.	Per cent.
1885 Jan. 1	2098	95					1562	70	1669	76
1885 July 1	2048	93								
1886 Jan. 1	2023	92					1509	69		
1886 July 1	2023	92								
1887 Jan. 1	2059	94								
1887 July 1	2116	96								
1888 Jan. 1	2230	101								
1888 July 1	2121	96								
1889 Jan. 1	2187	99								
1889 July 1	2161	98								
1890 Jan. 1	2236	102								
1890 July 1	2259	103								
1891 Jan. 1	2224	101								
1891 July 1	2190	99								
1892 Jan. 1	2133	97								
1892 July 1	2081	95								
1893 Jan 1	2120	96								
1893 July 1	2105	96								
1894 Jan. 1	2082	95								
1894 July 1	1974	90								
1895 Jan. 1	1923	87								
1895 July 1	1931	88								
1896 Jan. 1	1999	91								
1896 July 1	1947	88								
1897 Jan. 1	1950	88								
1897 July 1	1885	86								
1898 Jan. 1	1890	86								
1898 July 1	1915	87								
1899 Jan. 1	1918	87								
1899 July 1	2028	92								
1900 Jan. 1	2145	97								
1900 July 1	2211	101								
1901 Jan. 1	2126	97								

[1] The years of the Economist Table to 1860 have been thus worked out by Professor Falkner (cf. Aldrich Report, I, p 224):

1845–50	2200	100
1851	2293	104
1852	1863	93
1853	2167	108
1854	2445	122
1855	2357	118
1856	2459	123
1857	2645	132
1858	2612	119
1859	2304	115
1860	2426	121

1862–1867), and there being a disproportionate number of materials.

Mr. Bourne corrected the figures of the *Economist* by inserting only one quotation of cotton goods (an average of the four) and by adding coal, thus using the prices of only twenty articles; but he ended with 1879.

He also constructed a table of his own including only seven articles (wheat, cotton, wine, silk, rice, opium, and tea) taken from the prices of goods in the country of their production. The quotations were taken from the British "Statistical Abstract for Foreign Countries and for Colonial Possessions," running from 1860 to 1879, the average prices of 1872–1877 being used as the base.

Mr. R. H. I. Palgrave, in order to get a comparison with some Indian prices which began in 1865, rearranged the figures of the *Economist*, choosing the years 1865–1869 as a basis.

Mr. Palgrave at the same time reorganized the *Economist* Table by introducing into it a system of weighting, each article being assigned an importance based on the proportion of the home trade in it to the total home trade in all the twenty-two articles (taking into account both quantities and values). For instance, in the year 1873, the home trade in raw cotton was £48,000,000, and in indigo £800,000, out of a total home trade of £306,450,000 for the twenty-two articles; hence cotton is given an importance of 346, and indigo of only 6, out of 2200. The comparison between a weighted and an unweighted table, even though for so small a number of articles, can be made in the tables on pages 176, 177, and in Diagram III.

JEVONS

V

An epoch-making study of prices was begun in 1863 by Professor W. Stanley Jevons in a pamphlet entitled "A Serious Fall in the Value of Gold ascertained, and its Social

Effects set forth." In 1865 there appeared an article by him in the *Journal of the Royal Statistical Society*, XXVIII, pp. 294–320, on "The Variation of Prices and the Value of the Currency since 1792," followed by a letter to the *Economist*, May 8, 1869, pp. 530–532, on "The Depreciation of Gold." [1]

In the first study Mr. Jevons used prices taken mainly from the *Economist*, covering the following thirty-nine articles:

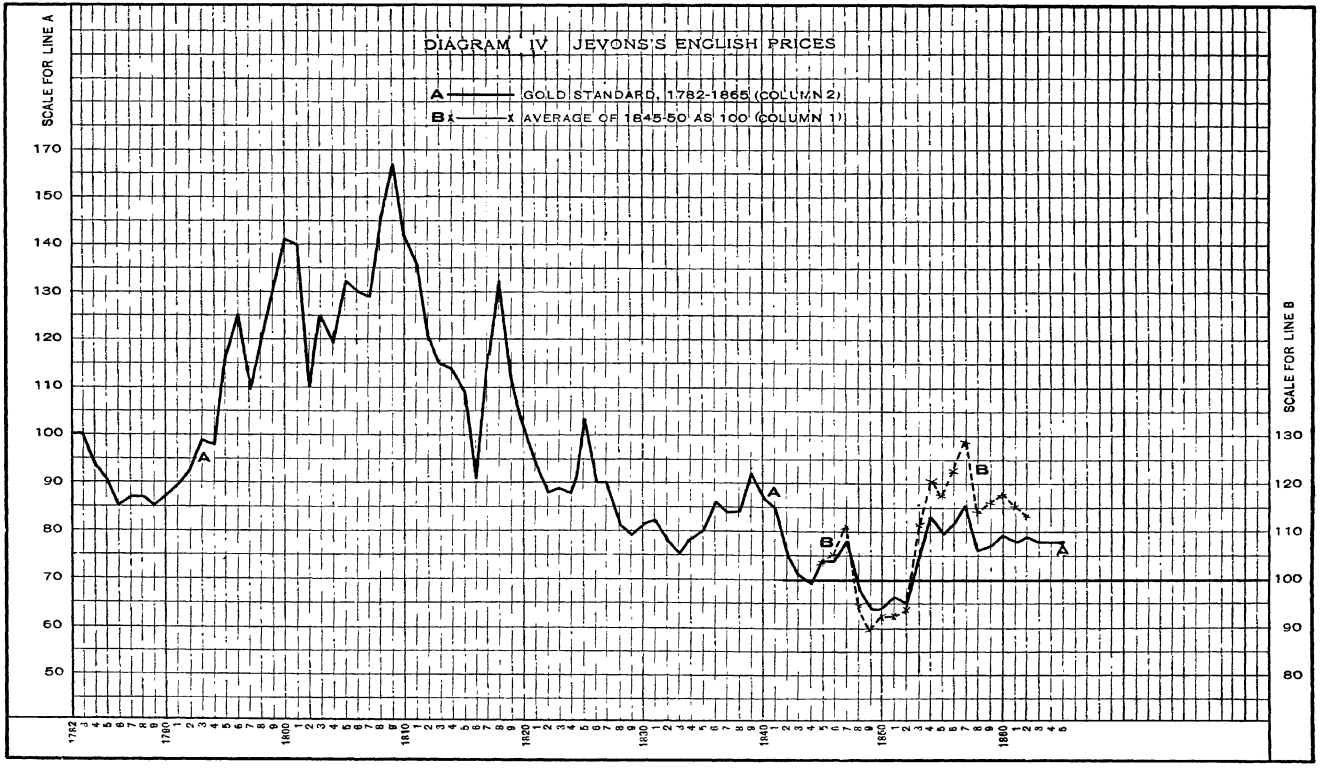
> I., silver, tin, copper, lead, bar iron, pig iron, tin plates; II., palm oil, linseed oil, tallow, hides, leather, timber, logwood, indigo; III., cotton (three grades), wool, silk, flax, hemp; IV., wheat, barley, oats, rye, beans, peas; V., hay, clover, straw, beef, mutton, pork, butter; VI., sugar, sprits, tea, pepper.

No weighting was adopted, but he first introduced the geometric average, although not in all his computations. For the initial quotation of a certain commodity he took the arithmetic average of the prices of the highest and lowest quality, obtaining thereby the average price of the medium quality. While admitting this not to be rigorously correct, he thought it satisfactory enough; and it also saved a vast amount of labor. From the monthly prices thus obtained, the simple arithmetic mean prices for each year were drawn.[2] As a base, the simple arithmetic average of the price of each article for the six years, 1845–1850, was first found. Then this was divided into the average price of each separate year from 1845 to 1862. The ratios thus obtained for the years 1845–1850 represent the proportional variations due to speculation or to other ordinary fluctuations; for the years since 1850, the percentages express the rise of prices above their former ordinary level. Finally, he grouped together those

[1] The latter was reprinted in the Journal of the Royal Statistical Society, Dec., 1869, pp. 445–449. Also, all the above articles, with tables and diagrams, were published in his "Investigations in Currency and Finance." The discussion was preceded by Chevalier's "On the Probable Fall in the Value of Gold" (1859).

[2] Cf. Investigations in Currency and Finance, pp. 38, 41, 43, 45.

Year.	1. Average of 1845–50 taken as 100.	2. Gold Standard.	3. Gold Standard Logarithm.
1782		100	.000
1783		100	.001
1784		93	$\bar{1}$.966
1785		90	$\bar{1}$.956
1786		85	$\bar{1}$ 927
1787		87	$\bar{1}$.941
1788		87	$\bar{1}$.941
1789		85	$\bar{1}$.930
1790		87	$\bar{1}$.937
1791		89	$\bar{1}$.947
1792		93	$\bar{1}$.969
1793		99	$\bar{1}$ 994
1794		98	$\bar{1}$ 989
1795		117	.067
1796		125	.097
1797		110	.043
1798		118	.070
1799		130	.113
1800		141	.148
1801		140	.147
1802		110	.042
1803		125	.096
1804		119	.074
1805		132	.120
1806		130	.113
1807		129	.110
1808		145	.160
1809		157	.195
1810		142	.152
1811		136	.132
1812		121	.081
1813		115	.060
1814		114	.058
1815		109	039
1816		91	$\bar{1}$.959
1817		117	.067
1818		132	.119
1819		112	.048
1820		103	.013
1821		94	$\bar{1}$.975
1822		88	$\bar{1}$.946
1823		89	$\bar{1}$.948


DIAGRAM IV JEVONS'S ENGLISH PRICES
A——— GOLD STANDARD, 1782-1865 (COLUMN 2)
B x——x AVERAGE OF 1845-50 AS 100 (COLUMN 1)
SCALE FOR LINE A
170
150
140
130
120
110
100
90
80
70
60
50
SCALE FOR LINE B
130
120
110
100
90
80
1782
1790
1800
1810
1820
1830
1840
1850
1860
A
B

Year.	1. Average of 1845–50 taken as 100.	2. Gold Standard.	3. Gold Standard Logarithm.
1824		88	$\bar{1}$.946
1825		103	.014
1826		90	$\bar{1}$.953
1827		90	$\bar{1}$.956
1828		81	$\bar{1}$.909
1829		79	$\bar{1}$.899
1830		81	$\bar{1}$.906
1831		82	$\bar{1}$.915
1832		78	$\bar{1}$.893
1833		75	$\bar{1}$.877
1834		78	$\bar{1}$.891
1835		80	$\bar{1}$.905
1836		86	$\bar{1}$.935
1837		84	$\bar{1}$ 922
1838		84	$\bar{1}$.924
1839		92	$\bar{1}$.965
1840		87	$\bar{1}$.940
1841		85	$\bar{1}$.928
1842		75	$\bar{1}$.875
1843		71	$\bar{1}$.851
1844		69	$\bar{1}$.840
1845	104.4	74	$\bar{1}$.867
1846	105.4	74	$\bar{1}$.871
1847	110.8	78	$\bar{1}$.894
1848	94 1 } 100	68	$\bar{1}$.831
1849	89 6	64	$\bar{1}$.806
1850	92.1	64	$\bar{1}$.808
1851	92 4	66	$\bar{1}$.817
1852	93 8	65	$\bar{1}$.810
1853	111.3	74	$\bar{1}$.871
1854	120.7	83	$\bar{1}$.919
1855	117.6	80	$\bar{1}$.903
1856	122.5	82	$\bar{1}$.916
1857	128.8	85	$\bar{1}$.928
1858	114.2	76	$\bar{1}$.878
1859	116.0	77	$\bar{1}$.884
1860	117.9	79	$\bar{1}$.898
1861	115.1	78	$\bar{1}$.894
1862	113.4	79	$\bar{1}$ 900
1863		78	$\bar{1}$.894
1864		78	$\bar{1}$.894
1865		78	$\bar{1}$.890

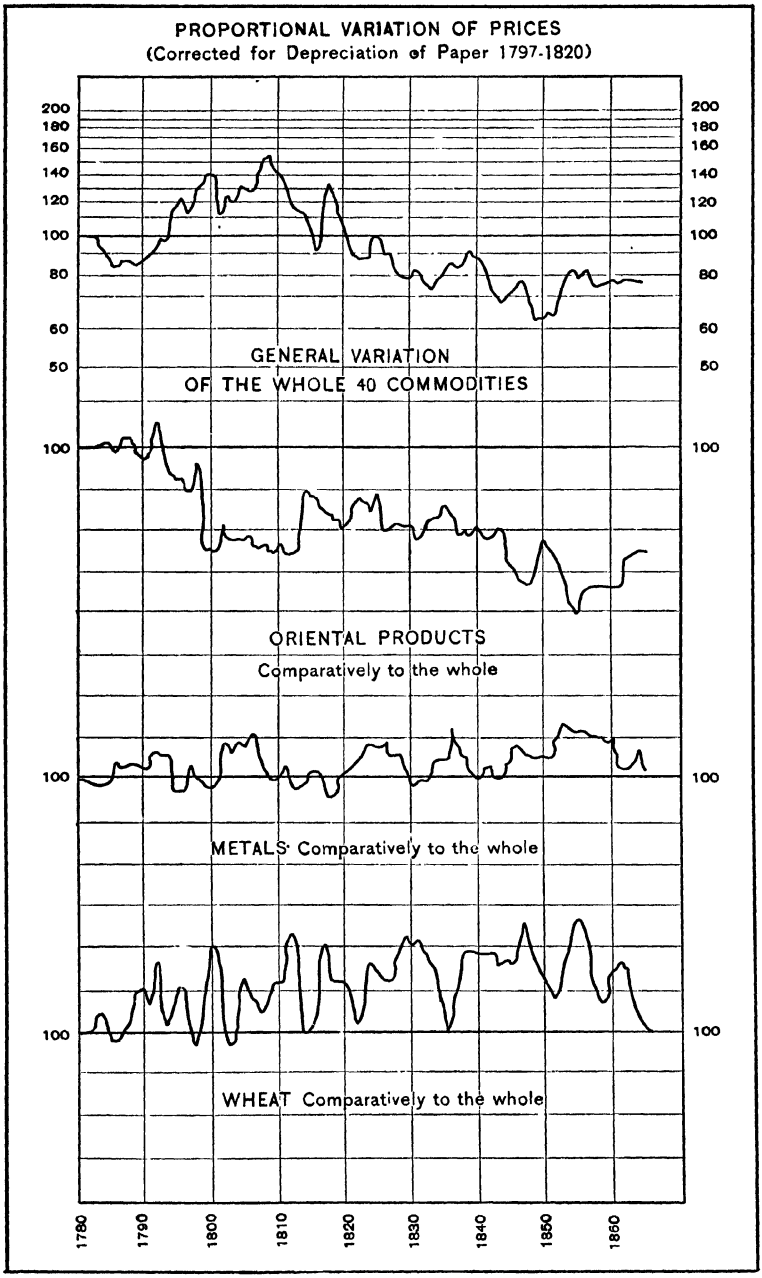
commodities which seemed to have something in common, and calculated their average ratios, or percentages, by the geometric mean. Also, he deduced by the same method the general-average variation from year to year of the whole thirty-nine commodities. These figures are given above in column. 1.

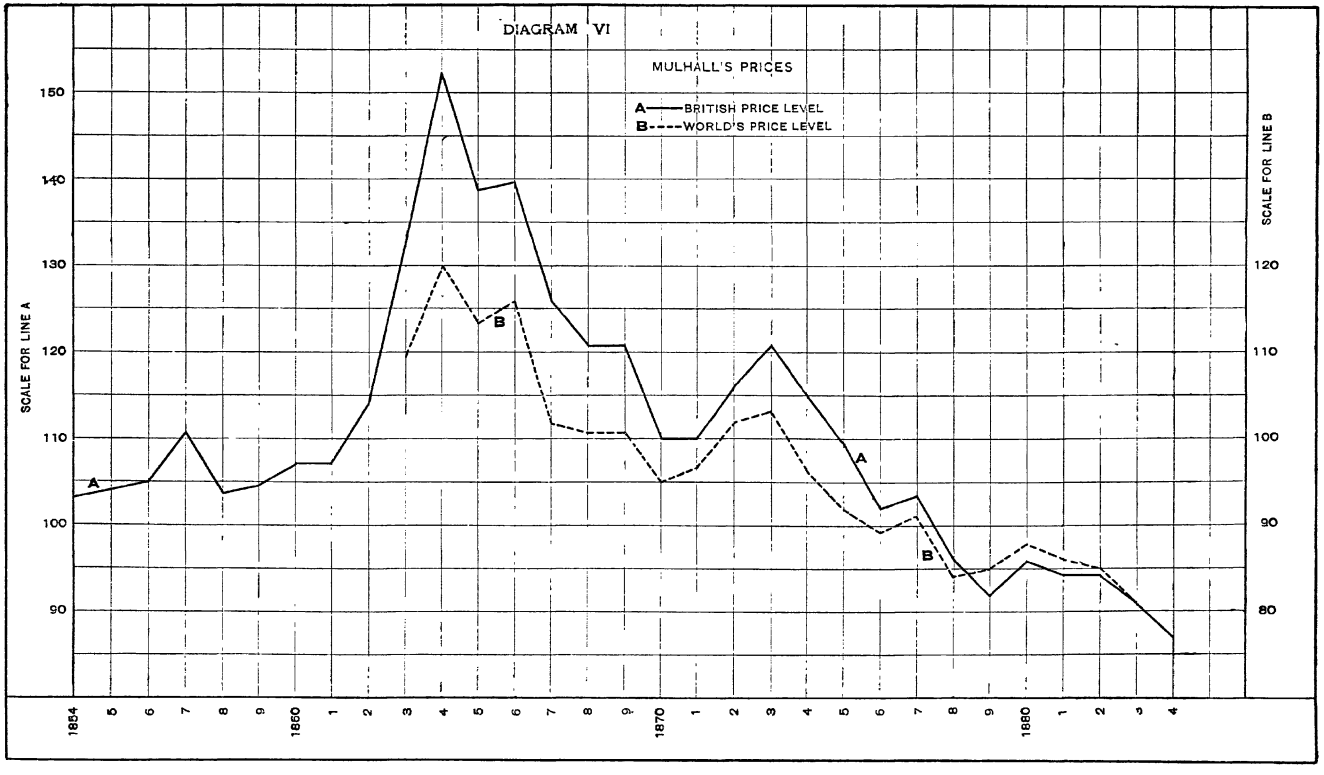
In 1865 Professor Jevons presented[1] a table of about forty articles running over the long period from 1782 to 1865. The quotations were taken mainly from Tooke and Newmarch's *History of Prices*, but after 1844 they were the same, in general, as those used in his former table (1845–1862). For each commodity a single quotation for each year was obtained. In some cases this was a yearly average, but generally it was the medium of the highest and lowest prices in the March quotations of Tooke's tables. "The method of reduction used consists in calculating the ratios of change of prices year after year, and then taking, by the aid of logarithms, the geometric mean ratio of change of prices for each year." The ratio of each yearly price to that of the preceding year is calculated by means of logarithms. After the logarithmic ratios have been copied and grouped those of the several groups are added and averaged. The addition of those for the groups gives the final aggregates of ratios for all articles in the list. To this point, only the ratio of prices each year to those of the preceding year have been obtained. Next, he joined the separate yearly ratios to each other year after year by adding the logarithms. By retaining the logarithms, Mr. Jevons was able, in his judgment, to represent the ratios of variations more equitably than by the natural numbers derived from the logarithms. The upper line in Diagram V is based on the logarithms. These results are given in columns 2 and 3 in the tables on pages 180, 181.

[1] Investigations in Currency and Finance, pp. 119–150. As to method, see pp. 120, 124–130, 142–143.

DIAGRAM V

W. S. JEVONS'S PRICES




DIAGRAM VI
MULHALL'S PRICES
A——BRITISH PRICE LEVEL
B----WORLD'S PRICE LEVEL
SCALE FOR LINE A
SCALE FOR LINE B
150
140
130
120
110
100
90
120
110
100
90
80
A
B
A
B
1864
5
6
7
8
9
1860
1
2
3
4
5
6
7
8
9
1870
1
2
3
4
5
6
7
8
9
1880
1
2
3
4

MULHALL

VI

Mr. Mulhall, in 1885, in his *History of Prices since the Year* 1850, declared that for the purpose of ascertaining the variations in the value of gold, index numbers were "an uncertain and deceptive method," chiefly because they were not corrected by proper weighting. Instead, he proposed to compare "the actual total of trade with the sums which the same volume of merchandise would have amounted to at previous periods according to the prices then ruling."[1] This is his "trade-level" method. In the following Table of the British price level the amounts of 50 articles[2] imported and exported (taken from the Board of Trade returns) are computed at the prices of 1841–1850; then the "ratios of values" for the thirty-one years to 1884 are summed up in percentages, in which the price level of 1841–1850 is taken as 100 (pp. 153–154):

Year.		Year.		Year.	
1854	103	Average	129	1876	102
1855	104	1866	139	1877	103
1856	105	1867	126	1878	96
1857	111	1868	121	1879	92
1858	103	1869	121	1880	96
1859	104	1870	110	Average	97
1860	107	Average	123	1881	94
Average	105	1871	110	1882	94
1861	107	1872	116	1883	91
1862	114	1873	121	1884	87
1863	133	1874	115	Average	91½
1864	152	1875	109	1861–70	126
1865	138	Average	114	1871–80	106
				1854–84	110

His price levels for the world are as follows in millions sterling (pp. 155–156):

[1] P. 1.

[2] Pp. 179–183.

Year.	Aggregate Trade Returns.	At Prices of 1860–62.	Ratio of Values.
1860–62	722		100
1863	765	699	109
1864	812	677	120
1865	828	732	113
1866	920	791	116
1867	909	891	102
1868	939	932	101
1869	973	960	101
1870	1004	1057	95
Average	847	842	107
1871	1155	1187	97
1872	1284	1259	102
1873	1326	1285	103
1874	1295	1322	97
1875	1263	1368	92
1876	1263	1413	89
1877	1266	1389	91
1878	1266	1507	84
1879	1306	1528	85
1880	1489	1700	88
Average	1291	1396	92
1881	1495	1740	86
1882	1503	1775	85
1883	1524	1883	81
Average		1798	84

It will be noticed that in the British trade level the prices of 1841–1850 are taken as a basis, while in the world level the prices of 1860–1862 are used; so that the "ratio of values" in the two tables cannot be accurately compared.

Mr. Mulhall also prepared a price level of the world since 1782, the quantities of goods in 1881–1884 being computed at the prices of previous years;[1] but the insufficient data used do not warrant their appearance here.

SAUERBECK

VII

The table of English prices now most frequently consulted, because it begins with 1846 and comes down to the present day, is one compiled by Mr. Augustus Sauerbeck, and first published in the *Journal of the Royal Statistical Society* for

[1] Pp. 177–178. The questionable character of his data appears when one finds that, before 1840, the prices are British only.

September, 1886. His index numbers are computed by a simple, unweighted arithmetic average. "With but few exceptions the prices given are the average prices in each year, either those officially returned or the averages of the twelve quotations at the end of each month, partly received from private firms, partly collected from the *Economist* and other publications. Where a range of prices is given, the mean has been taken between the highest and lowest quotations."[1] The average prices of the years 1867–1877 are taken as the base line, or 100. Although there are only thirty-

Year.	1. Vegetable Food, (Corn, etc.)	2. Animal Food, (Meat, etc.)	3. Sugar, Coffee, and Tea.	4. Total Food	5. Minerals.	6. Textiles.	7. Sundry Materials	8. Total Materials.	9. Grand Total.	10. Reduced by Falkner[2] to base of 1860 as 100 1846–1891.
1846	106	81	98	95	92	77	86	85	89	92.2
1847	129	88	87	105	94	78	86	86	95	97.9
1848	92	83	69	84	78	64	77	73	78	79.9
1849	79	71	77	76	77	67	75	73	74	76.4
1850	74	67	87	75	77	78	80	78	77	79 0
1851	73	68	84	74	75	75	79	76	75	77.1
1852	80	69	75	75	80	78	84	81	78	80 8
1853	100	82	87	91	105	87	101	97	95	96.9
1854	120	87	85	101	115	88	109	104	102	106.2
1855	120	87	89	101	109	84	109	101	101	103 1
1856	109	88	97	99	110	89	109	102	101	102.8
1857	105	89	119	102	108	92	119	107	105	106.9
1858	87	83	97	88	96	84	102	94	91	93.3
1859	85	85	102	89	98	88	107	98	94	95.2
1860	99	91	107	98	97	90	111	100	99	100.0
1861	102	91	96	97	91	92	109	99	98	99.6
1862	98	86	98	94	91	123	106	107	101	105.5
1863	87	85	99	89	93	149	101	115	103	109.3
1864	79	89	106	88	96	162	98	119	105	112.3
1865	84	97	97	91	91	134	97	108	101	105.8
1866	95	96	94	95	91	130	99	107	102	106.5
1867	115	89	94	101	87	110	100	100	100	103.9
1868	113	88	96	100	85	106	102	99	99	103.1
1869	91	96	98	94	89	109	100	100	98	101 9
1870	88	98	95	93	89	106	99	99	96	100.3
1871	94	100	100	98	93	103	105	101	100	102.6
1872	101	101	104	102	127	114	108	115	109	112.5

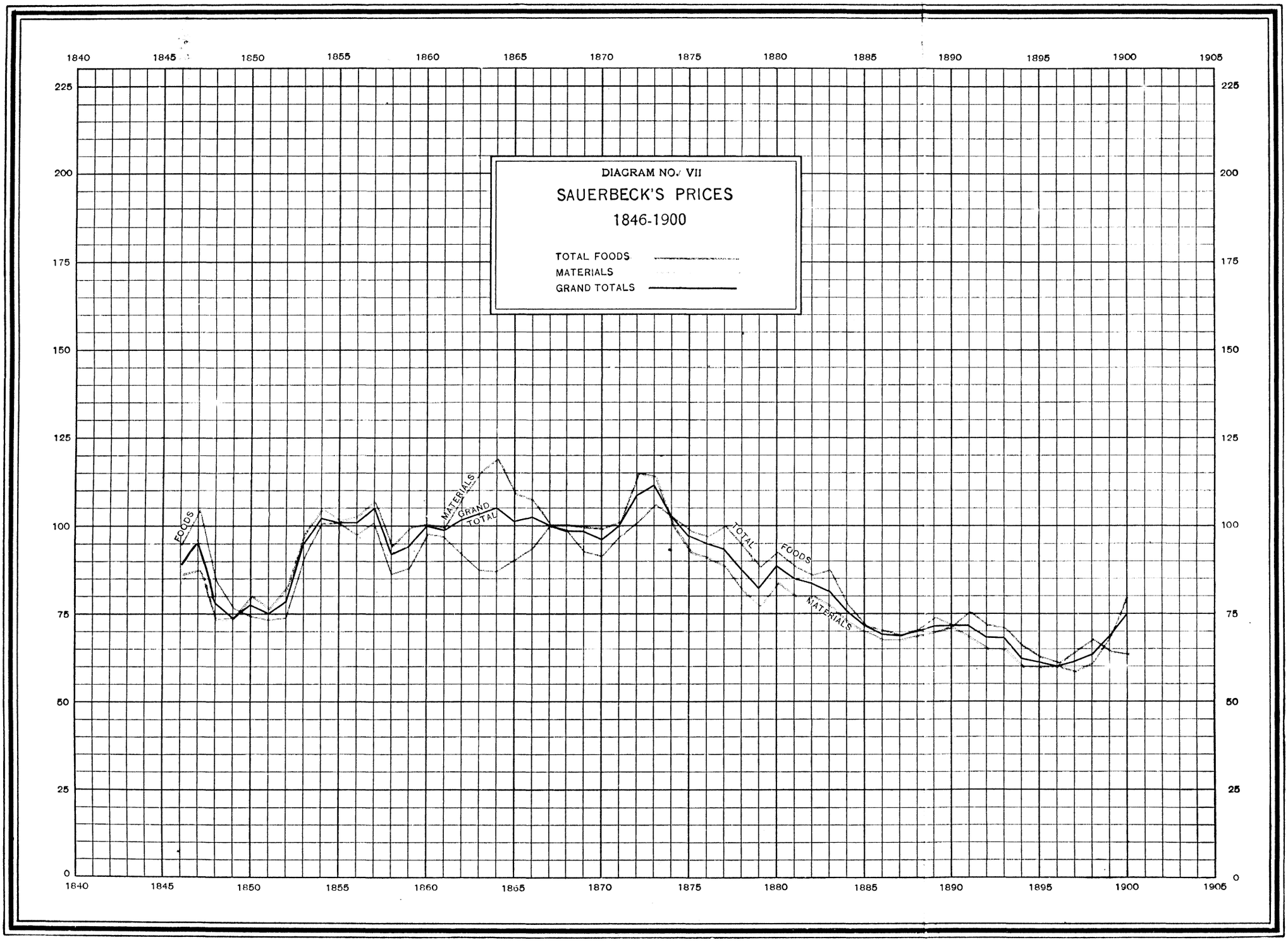
[1] P. 632.

[2] Aldrich Report, I, p. 255.

Year.	1. Vegetable Food, (Corn, etc.)	2. Animal Food, (Meat, etc.)	3. Sugar, Coffee, and Tea.	4. Total Food.	5. Minerals.	6. Textiles.	7. Sundry Materials.	8. Total Materials.	9. Grand Total.	10. Reduced by Falkner to base of 1860 as 100 1846–1891.
1873	106	109	106	107	141	103	106	114	111	116 6
1874	105	103	105	104	116	92	96	100	102	107.0
1875	93	108	100	100	101	88	92	93	96	100 3
1876	92	108	98	99	90	85	95	91	95	97.5
1877	100	101	103	101	84	85	94	89	94	97.4
1878	95	101	90	96	74	78	88	81	87	91.2
1879	87	94	87	90	73	74	85	78	83	86.7
1880	89	101	88	94	79	81	89	84	88	91 8
1881	84	101	84	91	77	77	86	80	85	88.5
1882	84	104	76	89	79	73	85	80	84	88 0
1883	82	103	77	89	76	70	84	77	82	86.0
1884	71	97	63	79	68	68	81	73	76	79.3
1885	68	88	63	74	66	65	76	70	72	75.4
1886	65	87	60	72	67	63	69	67	69	72.4
1887	64	79	67	70	69	65	67	67	68	70.7
1888	67	82	65	72	78	64	67	69	70	73.9
1889	65	86	75	75	75	70	68	70	72	76.7
1890	65	82	70	73	80	66	69	71	72	76.0
1891	75	81	71	77	76	59	69	68	72	75.4
1892	65	84	69	73	71	57	67	65	68	
1893	59	85	75	72	68	59	68	65	68	
1894	55	80	65	66	64	53	64	60	63	
1895	54	78	62	64	62	52	65	60	62	
1896	53	73	59	62	63	54	63	60	61	
1897	60	79	52	65	66	51	62	59	62	
1898	67	77	51	68	70	51	63	61	64	
1899	60	79	53	65	92	58	65	70	68	
1900	62	85	54	69	108	66	71	80	75	
1901										

seven different articles in the table, an inspection of the following list discloses that the introduction of a fixed number of grades under certain articles is really a form of weighting according to an irregular system of importance:

I. Wheat (two grades), flour, barley, oats, maize, potatoes, rice; II., beef (two grades), mutton (two grades), pork, bacon, butter; III., sugar (three grades), coffee (two grades), tea (two grades); IV., pig iron, bar iron, copper (two grades), tin,


DIAGRAM NO. VII
SAUERBECK'S PRICES
1846-1900
TOTAL FOODS
MATERIALS
GRAND TOTALS
1840
1845
1850
1855
1860
1865
1870
1875
1880
1885
1890
1895
1900
1905
225
200
175
150
125
100
75
50
25
0
FOODS
MATERIALS
GRAND TOTAL
TOTAL FOODS
MATERIALS

lead, coals (two grades); V., cotton (two grades), flax (two grades), hemp (two grades), jute, wool (three grades), silk; VI., hides (two grades), leather, tallow, (two grades), palm oil, olive oil, linseed oil, linseed, petroleum (since 1872), soda crystals, nitrate of soda, indigo, timber (two grades).

Several objections appear against this table: (1) not all the prices are averages, some being only quotations on one day in a year; (2) the compiler admits that "it was impossible to retain exactly the same standard for this long period (1846–1885), owing to the frequent alterations of descriptions; and the old quotations for a few articles such as sugar, coffee, and flax, must be considered as only approximately showing the course of prices;"[1] (3) the sources from which prices were taken are not fully given; (4) the system of relative importance is not carefully adjusted; (5) the commodities included are all raw produce, thus allowing only the forces affecting special groups to be represented; and, most important of all, (6) the small number of articles, being only of raw produce, forbids its being taken as typical of goods in general and is not large enough to secure the elimination of errors in weighting. Hence in regard to sources of information, reliability, the number of commodities chosen, and the continuity of quotations on the same system, this table of prices falls in general value much below the Hamburg tables of German prices collected by Soetbeer.

F. J. ATKINSON

VIII

Mr. F. J. Atkinson, in the *Journal of the Royal Statistical Society*, March, 1897, pp. 84–147, has made a valuable table of Indian prices expressed in terms of the silver rupee. This is the only fairly extensive list now available which will enable us to ascertain whether silver fell relatively to goods of common use and production in silver-using countries

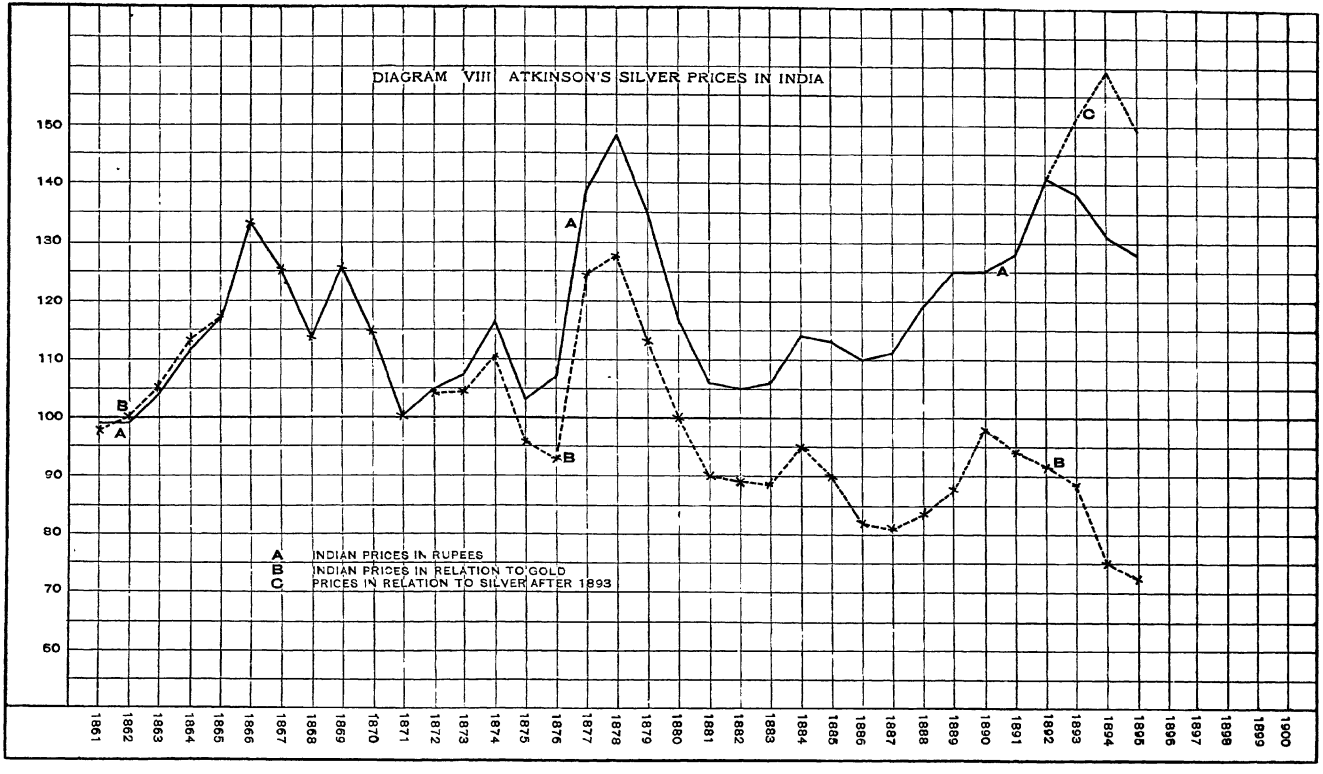
[1] P. 632.

like India. The quotations were taken partly from the prices current of the Chambers of Commerce in Calcutta, Bombay, and Madras; partly from *Prices and Wages of India*, issued by the Government; and partly from private sources. Sauerbeck's methods were followed in general; and evidently the arithmetic average was used. Allowance had to be made, however, for the peculiarities arising from the great variation of prices in different markets and provinces of India. Since prices differed widely in different provinces, the quotations for certain articles were taken from those provinces in which the production of a particular commodity was the greatest. The prices for 1871 were taken as the base of 100 for the index number.

Some articles entering more largely than others into the total trade of the country, Mr. Atkinson was led to adopt a system of weighting. The coefficient of importance for forty-five kinds of goods was found by obtaining the percentage which the total money value of the product of each article bore to the grand total of the value of all the articles in the table (see *Journal of the Royal Statistical Society*, pp. 124–125). The list of commodities, with the importance given to each, so that the whole number of points amounts to 100, is as follows:

> Rice (30), wheat (5), jawar (3), ragi (2), gram (2), fajra (2), maize, barley, other grains (5), potatoes, sugar (4), ginger, ghee, mutton, beef, tea, coffee, cotton (3), jute (2) indigo (2), opium (2), tobacco (2), linseed, til, rapeseed, castor seed, saltpetre, cutch, myrabolams, bone-manure, coal, rawsilk, wool, rawhides (3), timber (2), cotton goods (2), jute goods (2), oils (2), silk goods, tanned hides (3), shellac.

The general results of the investigation are given in the following table, of which columns 5, 6, and 7 are shown in Diagram VIII. It will be observed that goods expressed in silver have risen, as silver fell relatively to goods, by percentages rising as high as 50; while the same goods have fallen relatively to gold 25 per cent.


DIAGRAM VIII ATKINSON'S SILVER PRICES IN INDIA
150
140
130
120
110
100
90
80
70
60
A INDIAN PRICES IN RUPEES
B INDIAN PRICES IN RELATION TO GOLD
C PRICES IN RELATION TO SILVER AFTER 1893
1861 1862 1863 1864 1865 1866 1867 1868 1869 1870 1871 1872 1873 1874 1875 1876 1877 1878 1879 1880 1881 1882 1883 1884 1885 1886 1887 1888 1889 1890 1891 1892 1893 1894 1895 1896 1897 1898 1899 1900

1. Year.	2 Index Number in relation to the Rupee Food.	3. Index Number Raw Produce etc.	4. Index Number Manufactures etc.	5. Total Index Number in relation to Rupee	6. Index Number in relation to Silver	7. Index Number in relation to Gold.	8. Index Number of Food (Col. 2) in relation to Gold.	9. Gold Price of Commodities.	10. Gold Price Silver.	11. Gold Price Rupee.
1861	105	87	93	99	99	98.9	104.9	98	99.9	
1862	100	99	96	99	99	99.9	100.9	101	100.9	
1863	102	111	99	104	104	105 1	103.1	103	101.1	
1864	114	113	100	112	112	113.0	115.0	105	100.9	
1865	128	100	93	117	117	117.4	128 4	101	100.3	
1866	153	102	94	133	133	133.7	153 8	102	100 5	
1867	145	96	91	126	126	125.6	143.6	100	99.7	
1868	126	98	90	114	114	113.3	125.5	99	99.6	
1869	142	104	89	126	126	125.5	141.4	98	99.6	
1870	122	104	100	115	115	114.5	121.5	96	99.6	
1871	100	100	100	100	100	99.7	99.7	100	99.7	
1872	106	104	99	105	105	104.1	105.1	109	99.2	
1873	112	100	94	107	107	104.2	109.1	111	97.4	
1874	125	104	99	116	116	111.1	119.8	102	95.8	
1875	108	97	94	103	103	96.0	100.8	96	93.3	
1876	115	99	83	107	107	92 8	99.7	95	86.7	
1877	166	103	85	138	138	124 5	149.7	94	90.2	
1878	181	103	87	148	148	127 9	156.4	87	86.4	
1879	160	105	89	135	135	113.7	134.7	83	84.2	
1880	126	109	97	117	117	100.5	108.2	88	85.9	
1881	109	104	96	106	106	90.1	92.6	85	85.0	
1882	109	101	91	105	105	89 1	92 5	84	84 9	
1883	112	101	91	106	106	88.1	93.1	82	83.1	
1884	125	101	86	114	114	95.0	104.1	76	83.3	
1885	125	99	80	113	113	90.3	99.9	72	79.9	
1886	120	100	85	110	110	82.1	89 5	69	74 6	
1887	120	102	90	111	111	81.4	88.0	68	73 3	
1888	130	107	94	119	119	83 8	91.5	70	70.4	
1889	136	112	102	125	125	87.8	95.5	72	70.2	
1890	138	109	96	125	125	98.0	108.2	72	78.4	
1891	144	107	94	128	127	94.2	106.0	72	74.3	73.6
1892	161	116	97	141	141	92.1	105.1	68	65 5	65.3
1893	153	118	106	138	151	88 6	98.2	68	58.5	64.2
1894	141	119	109	131	158	75.3	81.1	63	47.7	57.5
1895	132	126	111	128	149	72.8	75.1	62	49.0	56.9

GERMAN PRICES — LASPEYRES

IX

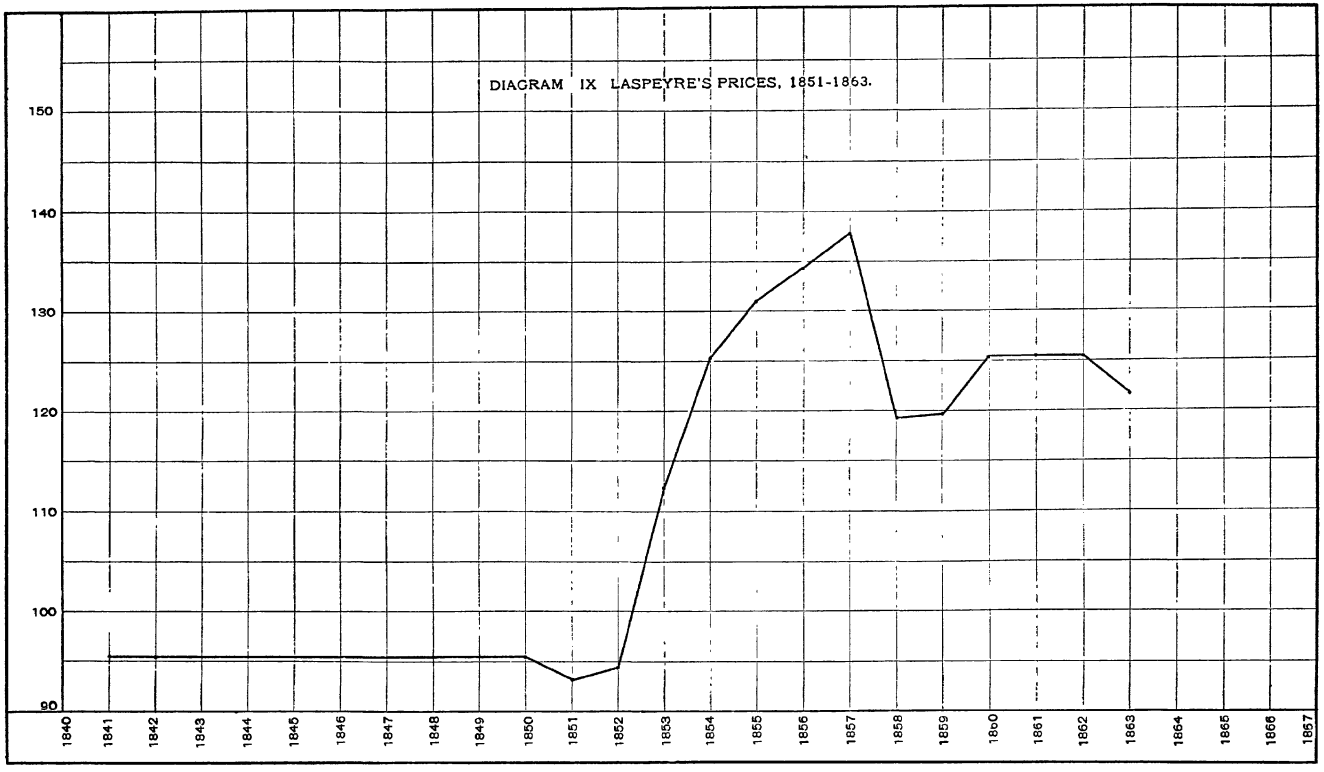
§ 9. Professor E. Laspeyres in 1864 made a study [1] of Hamburg prices from 1831 to 1863. The prices to the end of 1857 were borrowed from Soetbeer's *Beiträge zur Statistik der Preise* (1858); the others have been computed after Soetbeer's method from the *Hamburger Börsen Preiscourant.* The quotations given for the first Friday of each month were averaged for the year by the arithmetical mean. Each annual price is the average of from twelve to twenty-four quotations. The general average of the years 1831 to 1840 was taken as 100; but if this could not be ascertained, the average for 1841–1850 was adopted; and if this last failed, resort was had to the average of 1851–1853. For his list of forty-eight articles see the table given below, which also contains the lists of Paasche, Van der Borght, and Conrad.

It is to be noticed that the table includes practically no manufactured articles, being in the main materials or extractive goods. Also coffee is given an importance of three entries.

The results of the study are as follows:

Periods.	Average Prices.	Periods.	Average Prices.
Decade 1831–1840	100	Year 1857	137.8
" 1841–1850	95.4	" 1858	118.6
		" 1859	119.2
Year 1851	93.1	" 1860	125 4
" 1852	94.3	" 1861	125.7
" 1853	112.9	" 1862	125.4
" 1854	125.8	" 1863	122.2
" 1855	132.2		
" 1856	134.2	Decade 1854–1863	126.4

[1] Hamburger Waarenpreise, 1851–1863, und die californisch-australischen Goldendeckungen seit 1848, in the Jahrbücher für Nationalökonomie und Statistik, III. (old series), 1864, pp. 81–118, 209–236.


DIAGRAM IX LASPEYRE'S PRICES, 1851-1863.
150
140
130
120
110
100
90
1840
1841
1842
1843
1844
1845
1846
1847
1848
1849
1850
1851
1852
1853
1854
1855
1856
1857
1858
1859
1800
1861
1862
1863
1864
1865
1866
1857

(1) List of Laspeyres.	(2) Paasche's List, also used by Conrad.	(3) Conrad's List.	(4) Groups of 22 articles used by Paasche, Van der Borght, and Conrad	(5) Conrad's Groups of another List
1. Flax	1. Flax			
2. Rum				
3. Rice	2. Rice	1. Rice.	1. Rice (1)	1. Rice (3)
4. Cotton	3. Cotton	2. Cotton	2. Cotton (2)	2. Cotton (4)
5. Logwood				
6. Almonds	4. Almonds			
7. Wool		3. Wool		3 Wool (4)
8. Iron (pig)	5. Iron (pig)	4. Iron (pig)	3. Iron (pig) (4)	4. Iron (pig) (2)
9. Tea	6. Tea		4. Tea (1)	
10. Coffee (Rio)	7. Coffee (Rio)	5. Coffee (Rio)	5. Coffee (Rio) (1)	5 Coffee(Rio) (3)
11. Sugar (raw)	8. Sugar (raw)	6. Sugar (raw)	6 Sugar (raw) (1)	
12. Sugar (refined)		7. Sugar (refined)		
13. Calfskin	9. Calfskin			
14 Currants	10. Currants			
15 Hemp	11. Hemp	8. Hemp		6. Hemp (4)
16. Indigo	12. Indigo		7. Indigo (3)	
17. Tobacco		9. Tobacco (Ky.)		
18. Soda				
19. Pepper	13. Pepper	10. Pepper	8. Pepper (1)	7. Pepper (2)
20. Herring	14. Herring	11. Herring		
21. Coal	15 Coal & Coke	12. Coal	9. Coal (5)	
22. Copper	16. Copper	13. Copper	10. Copper (4)	8. Copper (5)
23. Tallow	17. Tallow			
24. Flour		14. Flour		9. Flour (1)
25. Lead	18. Lead	15. Lead	11. Lead (4)	10. Lead (5)
26. Rape-seed Oil	19. Rape-seed Oil	16. Rape-seed Oil		11. Rapes'd Oil (2)
27. Rape-seed	20. Rape-seed			
28. Hides				
29 Clover-seed	21 Clover-seed			
30. Saltpetre	22. Saltpetre		12. Saltpetre (3)	
31. Rags				
32. Pork				
33. Zinc (crude)	23. Zinc (crude)	17. Zinc (crude)	13. Zinc (crude)(4)	12. Zinc (crude)(3)
34. Gin				
35. Tar				
36. Cheese				
37. Butter	24. Butter			
38. Raisins	25. Raisins			
39. Rye	26. Rye	18. Rye	14. Rye (6)	13. Rye (5)
40. Beef				
41. Wheat	27. Wheat	19. Wheat	15. Wheat (6)	14. Wheat (1)
42. Barley	28. Barley	20. Barley	16. Barley (6)	15. Barley (1)
43. Tin	29. Tin	21. Tin	17. Tin (4)	16. Tin (5)
44. Cocoa	30. Cocoa		18. Cocoa (1)	
45. Oats	31. Oats	22. Oats	19. Oats (6)	17. Oats (1)
46. Wine				
47. Coffee (Java)		23. Coffee (Ceylon)		18. Coffee (Plantation) (3)
48. Coffee (Domingo)				
	32. Cocoa Oil			
	33. Palm Oil		20. Palm Oil (3)	
	34. Mahogany			
	35. Silk	24. Silk	21. Silk (2)	19. Silk (4)
	36. Hops			
	37. Linseed Oil			
	38. Bristles			
	39. Horsehair			
	40. Wax			
	41. Train Oil		22. Train Oil (3)	
	42. Lard			
	43. Quicksilver			
	44. Bar Iron			
	45. Cotton Yarn	{25, 26} Two grades		
	46. Woollen and half-woollen Yarn			
	47. Linen Yarn	27. Linen Yarn		
		28. Rye Flour		20. Rye Flour (1)
		29 Potato Whiskey		21. Potato Whiskey (2)
		30 Tobacco(Brazil)		
		31 Calico		
		32. Petroleum		
		33. Corn		22. Corn (1)

PAASCHE

X

TABLE I.

		1847–67.	1868.	1869	1870	1871	1872	1868–72
1	Coffee (Rio)	100	90	94	100	116	149	109
2	Cocoa	100	99	96	97	102	113	101
3	Tea	100	111	101	91	90	97	98
4	Sugar (raw Brazil)	100	100	114	101	110	112	107
5	Currants (dried)	100	60	63	89	90	89	78
6	Raisins	100	94	83	108	100	96	96
7	Almonds	100	119	111	116	107	94	109
8	Pepper	100	73	114	131	149	178	129
9	Cocoa oil	100	117	97	92	96	89	82
10	Palm oil	100	112	113	108	140	104	98
11	Indigo	100	131	144	145	136	135	115
12	Mahogany wood	100	65	61	91	84	111	138
13	Cotton	100	97	120	108	92	104	82
14	Silk	100	139	134	123	123	135	104
15	Flax	100	137	132	124	107	105	130
16	Hemp	100	105	109	97	112	107	121
17	Rice	100	88	72	82	84	86	106
18	Wheat	100	126	96	92	109	114	107
19	Rye	100	134	112	100	120	101	113
20	Barley	100	130	128	100	114	136	122
21	Oats	100	118	113	94	100	96	104
22	Hops	100	95	84	95	147	143	113
23	Clover-seed	100	114	98	114	130	121	115
24	Rape-seed	100	91	104	116	122	106	108
25	Rape-seed oil	100	83	88	112	102	94	96
26	Linseed oil	100	100	93	97	101	104	99
27	Calf-skin	100	118	114	114	122	137	121
28	Bristles	100	92	96	120	123	159	118
29	Horsehair	100	110	131	122	162	135	132
30	Wax	100	102	108	103	106	110	106
31	Tallow	100	97	97	96	95	94	96
32	Train oil	100	92	94	102	93	96	125
33	Butter	100	120	128	125	124	127	106
34	Lard	100	117	122	118	96	76	95
35	Herring	100	115	96	96	112	109	106
36	Pig iron	100	90	89	94	97	169	108
37	Pig zinc	100	101	104	98	90	116	102
38	Tin	100	88	111	118	127	143	117
39	Copper	100	84	85	82	85	103	88
40	Lead	100	99	97	100	95	131	104
41	Quicksilver	100	88	94	104	127	152	113
42	Coal and coke	100	97	93	93	97	138	104
43	Saltpetre	100	85	106	110	109	104	103
44	Bar iron (Engl.)	100	88	88	92	104	141	103
45	Cotton yarn	100	114	137	125	124	125	125
46	Woollen & half-woollen yarn	100	102	95	83	106	119	101
47	Linen yarn	100	98	85	84	87	107	92

The work of Laspeyres was continued to 1872 by H. Paasche, in the *Jahrbücher für Nationalökonomie und Statistik*, XXIII, 1874, pp. 168–178, who used the same sources. The forty-seven articles, however, chosen by Paasche are not the same as those used by Laspeyres, as may be seen in column two of the joint table already given, sixteen commodities not being in both lists. Only those are included which Paasche regarded as of importance in general consumption, those whose quotations were satisfactory, and those whose quality changed least.

The average prices of the twenty-one years from 1847 to 1867 were taken as 100. Table I (page 192) was computed by the unweighted, arithmetical average.

Then a system of weighting was tried. He took the quantity consumed in the later of two periods under consideration, and multiplied this quantity by the price in the first period; then compared this result with the same quantity multiplied by the price in the second period, $\frac{q' \times p}{q' \times p'}$ (Drobisch wished to compare the quantity consumed in the first period multiplied by the price of the first period, with the quantity consumed in the second period multiplied by the price of the second period, $\frac{q \times p}{q' \times p'}$). Paasche found he could get such data for only a limited number of commodities (colonial wares, sugar, mineral and mining products, grains, indigo, saltpetre, train oil, and palm oil), or about twenty-two in all. Their total value was about one-third of the total imports. The twenty-two articles were arranged in the following groups:

I., coffee, cocoa, tea, pepper, rice, sugar; II., cotton, silk; III., indigo, saltpetre, train oil, palm oil; IV., pig iron, zinc, tin, copper, lead; V., coal; VI., wheat, rye, barley, oats.

The result of this method was as follows:

Group.	1847–67.	1868.	1869.	1870	1871.	1872.	1868–72.
I.	100	94 5	102.2	104.0	110.30	125.6	106.77
II.	100	107.0	125.0	110.3	100.60	114.2	113.05
III.	100	119.5	126.6	133.1	128.20	105 4	118.50
IV.	100	91.3	90.5	93.6	96.02	152.6	105.00
V.	100	97.0	93 0	93.0	97 00	138.0	104.00
VI.	100	127.8	110.9	95.3	112.00	107.0	110 40
Sum	100	118.5	107.7	98.0	108.00	116 6	109.17
The arithmetic mean of the price ratios without reference to quantities give a rise of 1847–67 = 100.		100. 104	100: 106	100: 103	100: 109	100: 121	100: 108.1

R. VAN DER BORGHT

XI

R. van der Borght, in the *Jahrbücher für Nationalökonomie und Statistik*, XXXIX (new series 5), 1882, pp. 177–185, continued the work of Paasche, using the same twenty-two articles, in the same groups, employing the same methods, and extending the tables to 1880. His results, incorporating those of Paasche, are as follows:

Year.	Weighted Index Number according to Quantity.	Arithmetical Average.	Year.	Weighted Index Number according to Quality.	Arithmetical Average.
1847–67	100 00	100	1875	103.22	106
1868	118.50	104	1876	102.94	106
1869	107.70	106	1877	104.08	105
1870	98.00	103	1878	92.06	96
1871	108.00	109	1879	90.35	98
1872	116.60	121	1880	96.88	87
1873	120.13	124			
1874	114.12	113	1868–80	105.85	106

Also, he compared the prices of 1868–1872, and each succeeding period of three years, with those of 1847–1867 as a base (or 100); and, again, taking 1847–1875 as a base, he calculated the consumption of 1880 at the average prices of 1876–1880. The results are as follows:

Year.	Weighted Index Number.	Simple Arithmetrical Average.
1847–67	100 00	100.00
1868–72	109.17	108.10
1872–74	117.21	119.00
1875–77	110.17	106.00
1878–80	93.76	94.00
1847–75	100.00	100.00
1880	94.62	95.67

The correspondence in the outcome of both weighted and unweighted methods is striking confirmation of what has already been said on that point. In Diagram X, where Conrad's one hundred and sixty-three articles are introduced in contrast with the weighted average for twenty-two articles, the correspondence very properly disappeared; because the influence of a large number of quotations might, while otherwise similar, give a different general level of prices than that obtained by a small list.

CONRAD

XII

Professor J. Conrad has added to the work of those just mentioned by studies published in the *Jahrbücher für Nationalökonomie und Statistik*, XV, N. F., 1887, pp. 322–331, XVII, III F., 1899, pp. 642–660, and XIX, III F., 1900, pp. 525–539. Using the Hamburg sources, he first gave a table of prices in marks per centner for each of forty-seven articles (as given in column 2 of the joint table, p. 191, the same as that used by Paasche) for the following periods (see XIX, pp. 526–527): 1847–50, 1851–60, 1861–70, 1847–70, 1871–80, 1881–90, 1891–95, 1896, 1897, 1898; but no general index numbers were computed for the list as a whole. After having given these separate prices, he reduced the relative percentages of each price to the average of 1847–70 as 100, for the following periods: 1871–80, 1881–90, 1891–95, 1896,

CONRAD'S RELATIVE PRICES.

1847–1870 = 100.

TABLE I.

Number.	Article.	1871–80.	1881–85.	1886.	1887.	1888.	1889.	1886–90.	1881–90.	1891–95.	1896.	1897.	1898.
1	Coffee (Brazil) .	155.13	96.11	97.16	156.81	134.77	161.54	144.47	120.29	157.81	130.77	100.57	75.90
2	Cocoa	116.53	137.35	126.82	131.52	125.85	117.30	124.61	130.98	122.09	93.39	105.84	131.79
3	Tea	86.57	69.51	66.66	58.56	67.30	66.94	64.89	67.20	56.07	48.75	47.18	53.07
4	Sugar (raw) . .	109.16	85.38	48.94	51.30	60.83	84.12	59.81	72.59	—	—	—	—
5	Currants . . .	89.50	83.29	87.19	89.62	70.07	65.20	77.37	80.33	55.31	52.43	70.23	72.14
6	Raisins	99.51	97.76	88.17	71.86	69.73	71.74	78.50	88.13	65.88	76.63	88.21	95.28
7	Almonds . . .	110.91	111.77	101.77	104.92	101.43	114.63	110.68	111.23	100.03	77.10	81.01	103.52
8	Pepper	140.35	175.24	213.26	189.58	207.84	184.76	190.61	182.93	86.85	72.27	93.80	127.43
9	Cocoanut oil . .	89.13	74.83	66.32	64.11	58.51	59.42	62.26	68.54	61.87	55.82	56.99	62.96
10	Palm oil . . .	100.45	83.90	60.19	56.74	52.94	59.07	58.17	71.03	60.05	50.95	51.09	51.88
11	Indigo	111.41	101.26	88.53	85.60	84.10	95.23	85.47	93.37	79.42	78.82	75.02	74.46
12	Mahogany . . .	92.56	82.16	71.26	73.80	80.05	92.14	84.11	83.13	70.58	73.29	64.50	65.51
13	Cotton	81.06	65.01	59.35	56.79	62.65	60.14	60.05	62.53	48.90	43.60	46.81	39.81
14	Silk	102.71	80.79	69.83	68.03	61.63	79.69	67.34	74.07	—	—	—	—
15	Flax	102.57	106.41	109.86	80.46	61.30	61.46	75.63	91.02	—	—	—	—
16	Hemp	98.01	86.19	87.61	80.26	83.17	95.05	84.90	85.55	76.99	79.31	81.43	83.42
17	Rice	81.43	71.07	62.78	64.93	63.78	67.00	65.23	68.15	60.09	54.57	59.25	60.48
18	Wheat	104.38	85.30	68.77	68.58	65.85	65.21	67.21	76.26	61.37	53.61	66.57	70.96
19	Rye	106.26	95.74	69.09	62.95	67.09	67.71	69.34	82.54	77.72	54.44	59.20	69.96
20	Barley	127.79	107.52	94.42	79.00	57.52	62.01	71.97	89.75	59.10	52.31	48.54	57.04
21	Oats	109.97	99.04	89.21	75.14	66.53	80.46	79.64	89.34	80.33	70.63	73.50	78.96
22	Hops	150.51	176.20	105.77	98.31	34.33	95.28	94.15	135.18	—	—	—	—
23	Clover seed . .	115.02	107.38	93.16	87.72	93.09	91.77	88.62	98.00	93.30	69.81	68.50	63.49
24	Rape-seed . . .	97.88	90.46	80.72	74.02	76.48	82.31	79.52	84.99	71.44	70.51	73.43	72.96
25	Rape-seed oil . .	85.84	77.57	61.00	64.19	69.30	75.87	69.46	73.52	—	—	—	—
26	Linseed oil . .	90.54	74.93	65.10	62.87	57.56	63.82	64.03	69.48	65.56	63.04	58.83	60.66
27	Calfskins . . .	103.00	86.70	80.96	72.99	56.44	52.71	64.14	75.42	53.79	53.16	53.12	74.79
28	Bristles	155.22	172.66	154.17	165.86	88.18	99.15	118.86	145.76	94.64	80.34	72.87	76.00
29	Horsehair . . .	103.15	97.19	85.09	88.95	80.01	83.10	83.62	90.41	—	—	—	—
30	Wax	76.98	60.66	60.96	50.89	50.35	44.14	47.57	54.12	57.90	66.55	59.38	59.30
31	Tallow	89.74	86.30	61.96	60.95	57.40	67.79	61.78	74.04	61.76	47.32	47.71	50.02
32	Train oil . . .	82.17	80.24	57.36	54.86	52.58	54.13	53.00	66.62	48.34	55.75	50.70	44.47
33	Butter	134.16	129.75	113.09	112.62	72.56	78.59	87.47	108.61	—	—	—	—
34	Lard	86.92	87.79	59.37	64.22	78.70	78.77	68.70	78.24	70.84	50.41	47.38	53.82
35	Herring . . .	121.94	125.30	99.25	86.83	94.40	91.78	93.00	109.15	97.20	95.24	102.89	99.35
36	Iron (pig) . . .	117.71	79.02	64.85	68.66	66.21	84.20	74.11	76.56	73.57	69.75	75.20	73.84
37	Zinc (pig) . . .	112.76	84.97	68.78	70.75	59.81	58.90	69.94	77.46	—	—	—	—
38	Tin	96.32	85.04	77.23	84.33	95.90	83.87	84.40	84.72	74.30	57.89	57.27	62.79
39	Copper	88.02	68.54	54.46	50.76	75.26	57.62	59.27	63.91	53.98	52.10	52.27	54.05
40	Lead	112.19	69.11	64.02	77.58	89.53	116.20	98.43	83.77	81.40	91.29	92.56	87.52
41	Quicksilver . .	129.54	73.28	70.33	87.45	94.19	102.33	93.52	83.40	80.13	76.89	87.76	88.78
42	Coal and coke .	109.88	77.78	74.07	67.90	69.14	80.25	77.77	77.78	86.42	72.84	75.31	76.54
43	Saltpetre . . .	96.71	82.84	68.21	67.58	66.53	64.29	64.57	73.71	60.01	53.08	51.75	50.21
44	Bar iron (Eng.) .	113.53	73.26	66.91	59.21	67.74	75.64	71.49	72.38	81.58	74.30	73.15	75.23
45	Cotton yarn . .	115.60	96.62	116.54	118.74	125.53	114.62	114.15	105.38	93.85	77.56	75.32	77.47
46	Woollen and half-woollen yarn .	101.43	74.84	65.67	66.85	64.40	64.06	65.11	69.98	63.54	64.09	61.62	60,57
47	Linen yarn . . .	80.55	95.28	72.65	79.66	120.62	115.60	101.06	98.17	114.21	111.63	109.56	105.41
	Total Average[1] as compared with 100 of 1847–70.	106.01	93.82	82.32	81.18	77.85	82.72	81.49	87.65	75.85	68.52	67.08	72.86

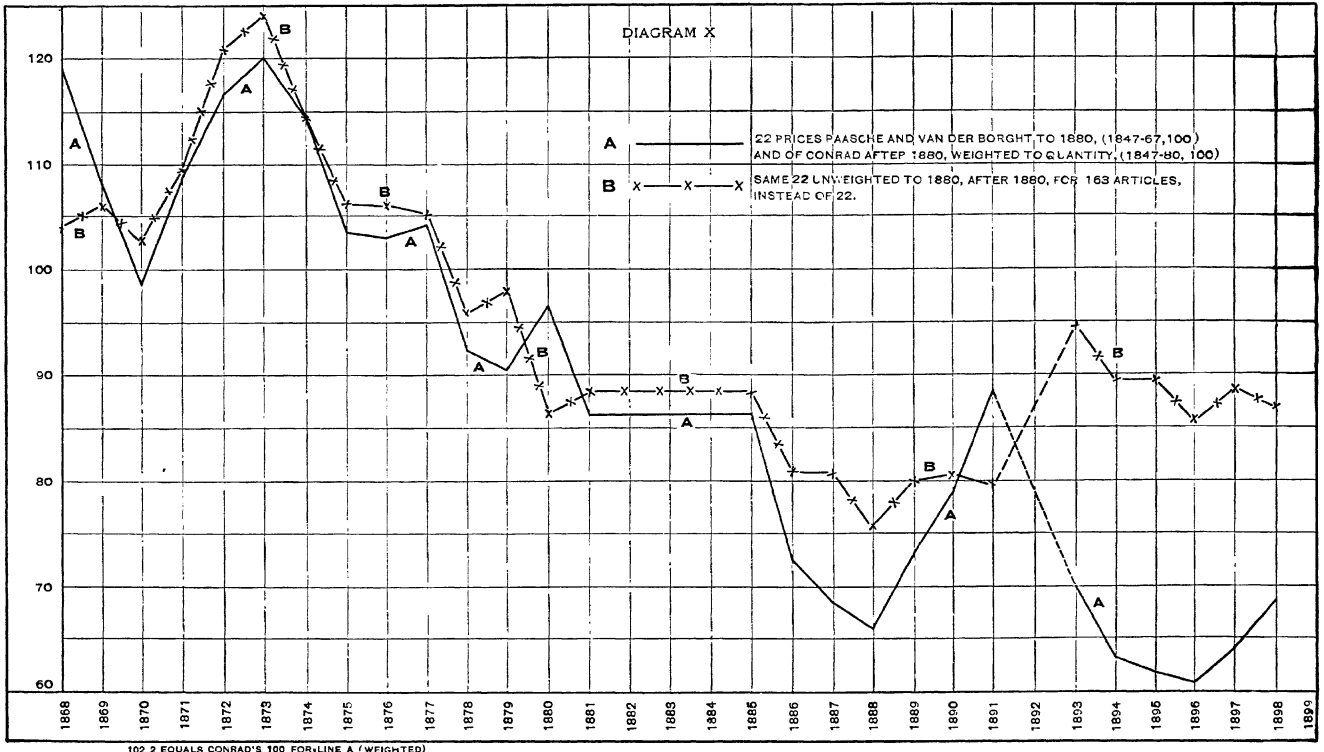
[1] To 1889 added by Falkner, *op. cit.*, p. 298.

1897, 1898. Here again no general index numbers were given which could be reproduced here. There are no means of getting comparisons from year to year, as a whole, in this table of separate prices.

The same twenty-two articles chosen by Paasche and Van der Borght (see joint list p. 191, column 4) were used by Conrad in the same groups in a table extended to 1898. These index numbers were obtained by weighting each relative price according to the quantity consumed (in Germany) in 1880 (see p. 645, XIX, 1900). For comparison, Conrad gives an index number computed by the arithmetic mean for one hundred and sixty-three articles imported at Hamburg. The number of articles quoted in the Hamburg records fell from three hundred and twenty to one hundred and sixty-three, in 1888, when Hamburg entered the German "Zollverband," since only those articles passed through the customs-house which came in by sea. There are some striking discrepancies[1] in the percentages of his Table I c. (p. 529, Vol. XIX) as compared with earlier tables, but I give Conrad's latest figures, as follows:

	Average of 1847-1880 as 100		Average of 1871-1880 as 100.	
Years.	Weighted Average of 22 Articles.	Arithmetic Mean of 163 Hamburg Articles.	Weighted Average of 22 Articles.	Arithmetic Mean of 163 Hamburg Articles.
1881-85	84.66	83 98	81.83	87.30
1886	70.73	75.43	68.66	73.38
1887	66 27	75.57	64 33	73.52
1888	64 05	70 48	62.17	68.57
1889	70 43	74 79	68.38	72.76
1890	77 01	74 83	74.76	72.80
1886-90	70 19	74.25	67.88	83.36
1891	86 45	74.19	83 93	70.61
1891-95	71.08	88.28	68.74	82.00
1893	67.78	89.42	65 55	83.06
1894	60 70	84 32	58 71	78.35
1895	59.51	84.40	57.55	78 40
1896	59.09	80.55	57.14	74.86
1897	62 22	83.10	60 17	77.19
1898	66.18	81.64	64.01	75.84

[1] Cf. p. 529, XIX, 1900, with p. 329, XV, 1887, for discrepancies.



102 2 EQUALS CONRAD'S 100 FOR LINE A (WEIGHTED)
106 4 " " " " " " B (UNWEIGHTED)

Also, taking 1847–1867 as 100, the weighted average for 1871–1880 of the twenty-two articles is 110.63 as against 104.00, the simple average of three hundred and eighteen Hamburg articles.[1]

Nowhere does Conrad give an index number for the years separately from 1880 to 1893, even for the twenty-two articles continued from Van der Borght, nor does he use the same base as 100. He thus furnishes no record of the yearly price movement from 1868 to 1899. He is chiefly interested in showing the changes between different periods as a whole.

In addition, from Imperial German statistics, Conrad gave a table of thirty-three articles, whose relative prices[2] are as follows, computed by the arithmetical mean:

Year.	Average of 1879–83 as 100.	Average of 1879–98 as 100.
1884–88	91.73	—
1889–93	95.14	91.52
1894–98	79.42	83.44
1896	78.87	81 82
1897	78.78	82.65
1898	80.13	84.04
1899	90 55	99.60

Finally, choosing another list of twenty-two commodities (see column 5 in joint table), he gave the arithmetical mean as follows:

Years.	1879–83 as 100.	1879–88 as 100.
1884–89	92.34	
1889–93	96.65	101.26
1894–98	80.52	84.35
1896	80.17	83.99
1897	79.59	83.23
1898	80.12	83.79
1899	90.99	99.53

[1] These figures, and those above for 1886, 1887, 1888, 1889, 1890, and 1891, have been taken from Falkner's material, Aldrich Report, I, pp. 300–301.

[2] The tables of 1900 and 1899 do not agree. The latest have been taken here.

The general result of the combined work of Paasche, Van der Borght, and Conrad is shown, so far as it can be done with the figures, in Diagram X. When only an average is given for a period of years, the line is parallel to the base, and does not show the actual fluctuations in each year.

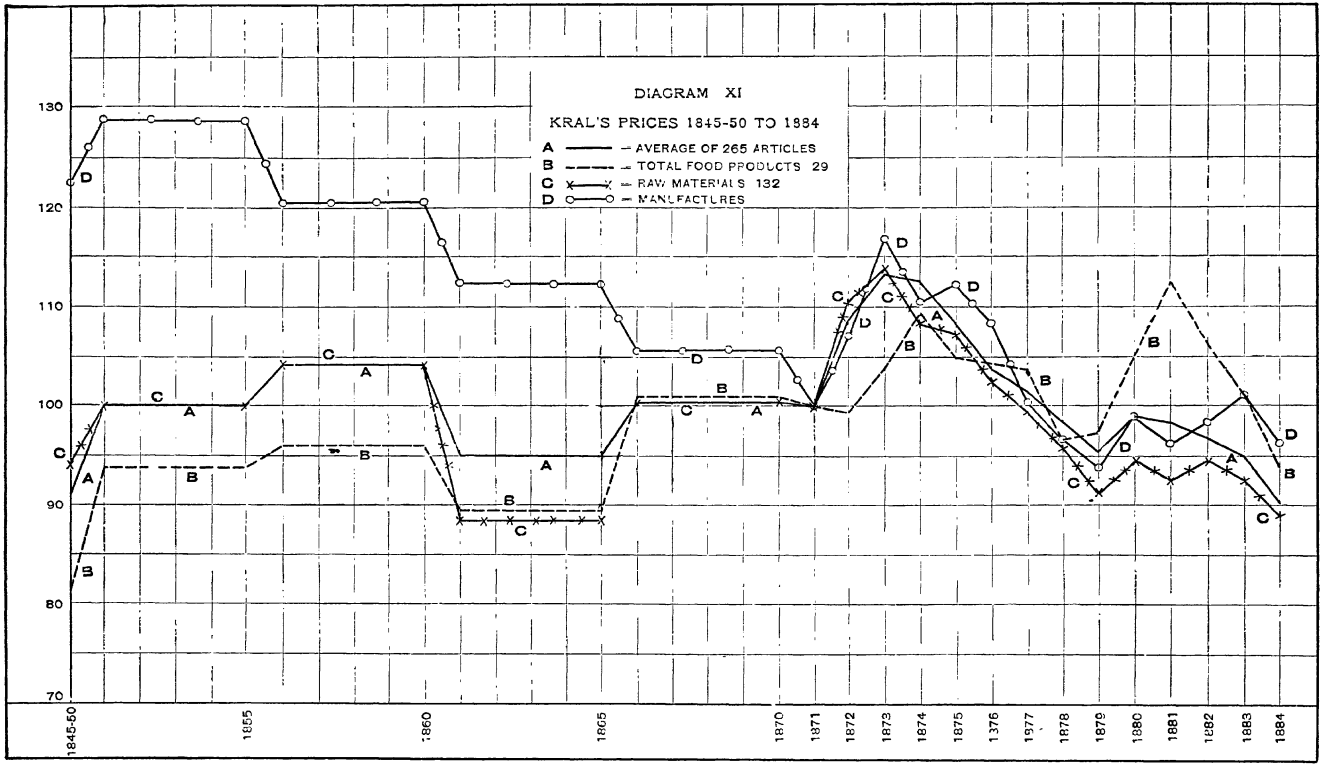
KRAL

XIII

Franz Kral, in his *Geldwert und Preisbewegung im deutschen Reiche* (1877), has given the Hamburg prices of two hundred and sixty-five articles from 1845–1850 to 1884, taking 1871 as 100. The method of the *Economist's* table was used. The following results have been reduced to a percentage by Falkner:[1]

Years.	Vegetable Food. (21)	Animal Food. (8)	Total Food. (29)	Table Luxuries. (59)	Drugs and Medicines. (5)	Raw Materials. (132)	Half Products of Manufactures. (7)	Manufactures (14)	Average of all Relative Prices. (265)
1845–50	81 22	82.85	81.67	80 84	89.58	94 24	92.75	122.90	91.38
1851–55	97.24	82.72	93.23	96 92	99 00	100.08	97.40	128.99	99.95
1856–60	96.58	93.17	95.64	107 42	96.13	104 07	107.33	120 69	104.39
1861–65	89 89	87.13	89.13	99 76	112 06	88.74	108 99	112.12	95.42
1866–70	101.39	98.97	100.73	95.90	106.44	100.48	99 42	105.20	100.47
1871	100.00	100 00	100 00	100 00	100.00	100 00	100 00	100.00	100.00
1872	100.27	98.78	99.86	110.70	99.39	110.30	119 69	107.66	108.82
1873	101.51	107 21	103.10	117 35	98.72	113.23	125.85	116.66	112.85
1874	107 10	116.61	109.73	122 96	108 05	108.92	109.07	110.04	112.14
1875	100 96	116 36	105 21	114.91	104.67	107.13	103.03	112.02	108.54
1876	100.09	116.36	104.58	111.03	95.86	102.94	94.42	108.68	104.33
1877	101.85	108 16	103.59	113 34	97.06	97.97	88.00	100.66	101.60
1878	96.92	96.25	96.73	111.07	89.02	95.14	86.12	96.87	98.09
1879	97.28	98.57	97.63	109.57	91 45	91.04	77.98	94.03	95.43
1880	101.24	115 39	105 14	112.53	89.56	94.73	78.23	99.26	98.91
1881	103.03	138 00	112.68	110.36	94 49	92.77	78 88	96.12	98.48
1882	100.01	122.77	106.29	103 50	91.46	94.50	77.62	98.19	96.95
1883	93.93	123.13	101.99	101 53	87.14	92 65	77.79	101.75	95.00
1884	86.83	112.09	93 80	94.34	91.61	88.56	78.61	96.99	90.57

[1] Aldrich Report, I, p. 296.


DIAGRAM XI
KRAL'S PRICES 1845-50 TO 1884
A — AVERAGE OF 265 ARTICLES
B — TOTAL FOOD PRODUCTS 29
C — RAW MATERIALS 132
D — MANUFACTURES
130
120
110
100
90
80
70
1845-50
1855
1860
1865
1870
1871
1872
1873
1874
1875
1876
1877
1878
1879
1880
1881
1882
1883
1884

SOETBEER

XIV

From Hamburg quotations, Dr. A. Soetbeer, in his *Materialien zur Erläuterung und Beurtheilung der wirthschaftlichen Edelmetallverhältnisse und der Wahrungsfrage* (2d ed., 1886), collected one of the most important tables of prices in recent times, beginning in 1847. The source of nearly one hundred leading articles was the *Handelsstatisches Bureau* at Hamburg; a few others, such as potatoes, butter, meat, etc., from the *Jahresabrechnungen Hamburgischer Verwaltungen;* and fourteen articles of British manufacture, from the official Trade Reports of Great Britain, — in all one hundred and fourteen commodities. From the Hamburg Bureau, the total quantity and total value of each article imported were obtained, and the average price was computed by a simple arithmetical process.

The weight and kind of each article imported into Hamburg, and the price of each on the Hamburg exchange on the day of importation, were recorded by the Bureau of Trade Statistics. From the total quantity and total value of each commodity for the year, the annual average was obtained by the simple arithmetical process. The statistical records do not exist previous to 1847; but from that date to 1888 they cover over three hundred articles, during the period when Hamburg was a free port. In 1888 Hamburg entered the German Customs Union; and since then only those articles entering by sea are subjected to inspection and record in the Statistical Bureau · for goods arriving by land quotations in the former method have not since been kept. Hence the material for a perfect continuance of Dr. Soetbeer's table since 1888 is not obtainable. The addition of the period, 1886–1890, was made by Soetbeer in the *Jahr. für Nat. u. Stat.*, III F., B. III (1892), pp. 588–596.[1]

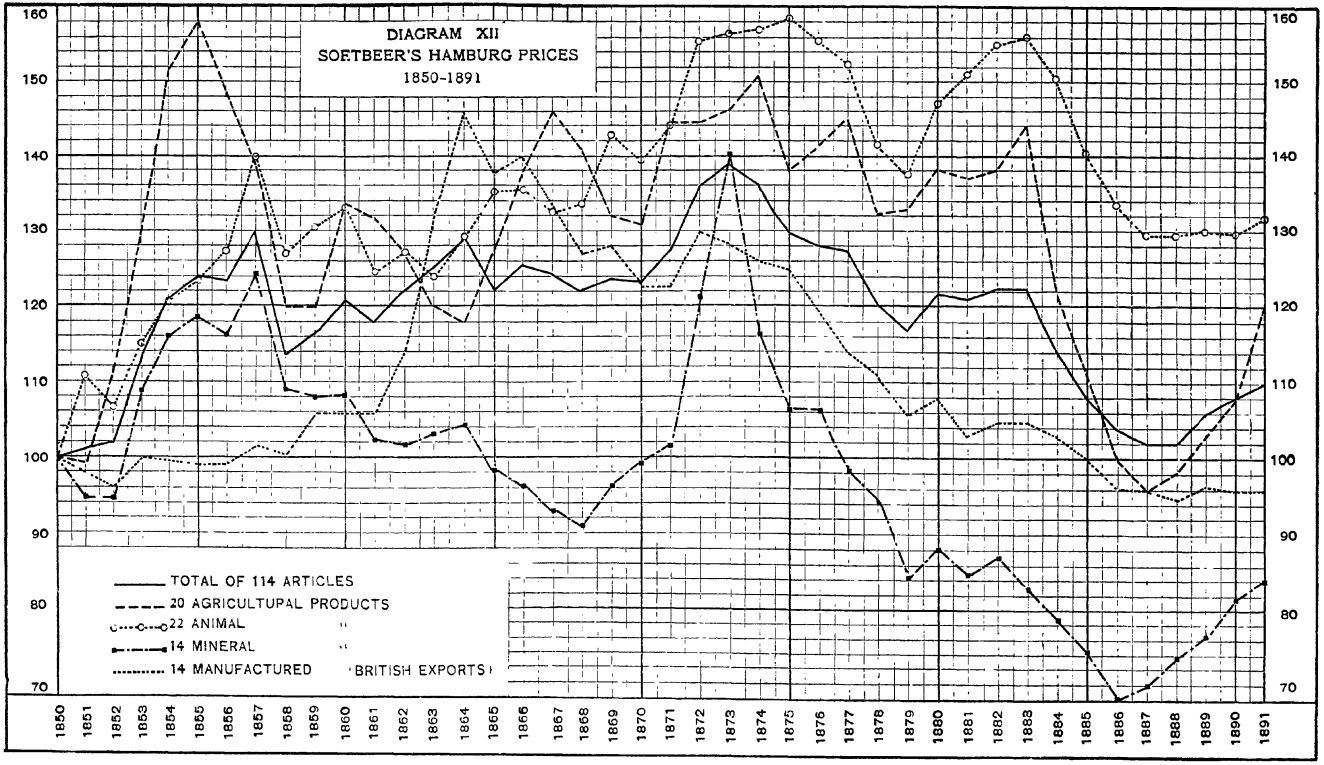
[1] For 1891, see Aldrich Report, I, p. 258.

SOETBEER'S TABLE OF RELATIVE PRICES.

1847–1850 = 100.

TABLE I.

Year.	I. Agricultural.	II. Animal.	III. Tropical, etc.	IV. East India Goods, etc.	V. Mineral.	VI. Textile Materials.	VII. Divers.	VIII. British Exports.	(I-VIII) Total of 114 Articles
1847–1850	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1851	99.02	110.38	90.00	99 94	95.70	104.39	103 98	97.98	100 21
1852	110 71	106 68	95.33	99.95	95.76	105.01	95 09	95 98	101 69
1853	128.18	114 94	124 78	115.28	109.24	101.43	105.17	100.61	113.69
1854	150 49	121.12	112 91	118.17	115 95	111.64	119 44	99 53	121.25
1855	158.82	123 54	142.03	121 02	119 10	103.58	109.63	98 27	124.23
1851–1855	129.99	114 79	110 43	110 97	107 03	105 20	106.65	98 47	112 22
1856	149.03	127 61	155 95	123 95	116.65	100.02	100.50	98 50	123.27
1857	138.11	140.18	169.32	140.32	124.58	112.18	108.01	101.25	130.11
1858	119.92	127 02	120.69	112 76	109.04	103.59	99 70	100 91	113.52
1859	119 48	130 69	113 40	115.74	108 57	104.69	115.57	105 77	116.34
1860	133.75	133 75	120.36	120.28	108.66	108.74	116.83	105.60	120.98
1856–1860	131.84	132 31	134 72	122.61	113 59	107.12	108.21	102 41	120 91
1861	131 46	124 79	122.08	117 19	102.40	110 85	119.65	105.84	118.10
1862	126 80	127 19	113.93	117.28	101.88	124 31	156 99	114.22	122.65
1863	120 12	124.12	114 97	116.87	102.92	151.84	161.36	133 45	125 49
1864	117 89	129.21	109 41	125.74	104 53	154.26	162 58	146.53	129 28
1865	126 48	135.23	114.01	116.11	98.93	117.80	121.06	137.80	122.63
1861–1865	124 46	128 24	114.13	118.64	102.11	131.83	144.33	127 56	123.59
1866	137.64	135 64	126.30	117 90	96 54	134.94	111.30	140 36	125.85
1867	146.38	132 68	126 44	114.35	93.28	130.31	108.13	133 91	124.44
1868	141 59	133.48	120.75	116 75	91.76	127 18	101.25	127.56	121 99
1869	132.40	143.25	115.58	122.10	96 33	130 52	98.17	128.15	123 38
1870	131 23	139 32	118.57	120 56	99.68	122 87	111 21	122.68	122.87
1866–1870	137.74	136 35	121.54	118 32	95.47	129.17	105.90	130.55	123.57
1871	144.76	144 14	122.99	120 22	101.85	119.23	117.48	122.64	127.03
1872	144.17	155 82	125.36	130 25	121.63	122 79	128 54	130 07	135.62
1873	146.21	156.72	132.15	134.32	140 60	119.58	119.14	128.52	138.28
1874	150.99	157.76	145.02	136.74	116.70	112 80	112 21	126.06	136.20
1875	138.16	158.59	131.35	132.11	107 49	111 47	98.74	124.96	129.85
1871–1875	144.90	154.57	131.50	130.72	116.90	117.17	114.98	126.44	133.29
1876	141 06	155 79	128.69	129 74	106.27	105 54	101.78	119.23	128 33
1877	145 34	152.51	140.55	130.29	98.87	108 33	99.80	114 04	127 70
1878	132.50	141.53	134.34	125 61	94.14	102.33	97.24	111.03	120.60
1879	132.92	137 60	139 10	123.34	84.28	98.76	90.21	105.93	117.10
1880	138.11	147.30	154.65	122 92	88.33	96 72	95 23	108.15	121.89
1876–1880	138.12	146.76	138.91	126 38	94 35	102.33	96.79	111 70	123 07
1881	137.50	151 21	146 57	122.60	84 87	99.29	94.89	103.08	121.07
1882	138.45	155 17	139.23	122.47	86 99	95 10	99 10	104 72	122 14
1883	143.33	156.40	142 38	120.17	82.93	95.93	95.38	104.72	122.24
1884	123 85	150 26	120 16	117 90	78.69	97.02	84.82	103 36	114.25
1885	110 75	140.45	123.78	116 39	74.23	95.89	81 35	100.48	108.72
1881–1885	130.77	150 65	134.41	119 91	81.55	96.65	91.11	103.28	117.68
1886	101 31	133.53	122.44	115 45	70 52	89.76	78 75	97.03	103.99
1887	96.28	129.93	121 81	116.59	72 50	81.42	77.30	95.98	102 02
1888	98 18	128.97	120 09	116.41	75 57	82.17	74.31	94.91	102 04
1889	102.06	130.95	127.57	118.82	78 55	89.05	86.41	96.60	106.13
1890	107 53	129 85	138.61	119 35	83.54	81.92	91.70	94 90	108 13
1886–1890	101.07	130 64	126.10	117.32	76.13	84.86	81.69	95.88	104 46
1891	119 88	131 66	139.99	113.56	84.72	80.40	85 06	95.11	109.19


DIAGRAM XII
SOETBEER'S HAMBURG PRICES
1850-1891
TOTAL OF 114 ARTICLES
20 AGRICULTUPAL PRODUCTS
22 ANIMAL
14 MINERAL
14 MANUFACTURED
BRITISH EXPORTS
160
150
140
130
120
110
100
90
80
70
1850 1851 1852 1853 1854 1855 1856 1857 1858 1859 1860 1861 1862 1863 1864 1865 1866 1867 1868 1869 1870 1871 1872 1873 1874 1875 1876 1877 1878 1879 1880 1881 1882 1883 1884 1885 1886 1887 1888 1889 1890 1891

SOETBEER'S PRICES.

Reduced by Falkner[1] to 1860 as 100.

TABLE II.

Year.	I. Agricultural. (20)	II. Animal (22)	III. Tropical, etc (7)	IV. East India Goods, etc. (19)	V. Mineral and Metals. (14)	VI. Textile Materials. (7)	VII Divers (10)	VIII. British Exports (14)	I-VIII. Total of 114 Articles.
1851	74 0	82.5	74.8	83.1	88.1	96 0	89.0	92 8	82.8
1852	82.8	79.8	79.2	83.1	88.1	96.6	81.4	90.9	84.1
1853	95 8	85 9	103 7	95 8	100 5	93.3	90 0	95.3	94.0
1854	112 5	90.6	93 8	98.2	106 7	102.7	102.2	94 3	100.2
1855	118.7	92.4	118.0	100.6	109.6	95.3	93.8	93.1	102.7
1856	111.4	95.4	129 6	103.1	107.4	92.0	86.0	93 3	101.9
1857	103.3	104 8	140.7	116 7	114.7	103 2	92 5	95 9	107.5
1858	89 7	95.0	100.3	93 7	100.3	95 3	85.3	95.6	93 8
1859	89.3	97.7	94.2	96.2	99.9	96 3	98 9	100 2	96.2
1860	100.0	100.0	100.0	100.0	100.0	100.0	100 0	100.0	100.0
1861	98.3	93.3	101 4	97.4	94 2	101 9	102.4	100.2	97.6
1862	94.8	95.1	94 7	97 5	93.8	114.3	134 4	108 2	101 4
1863	89.8	92 8	95.5	97 2	94.7	139.6	138.1	126.4	103.7
1864	88 1	96.6	90 9	104 5	96 2	141.9	139 2	138.8	106 9
1865	94.6	101.1	94 7	96.5	91.0	108.3	103.6	130 5	101.4
1866	102 9	101.4	104 9	98.0	88 8	124.1	95 3	132 9	104 0
1867	109 4	99 2	105.1	95.1	85.8	119.8	92 6	126.8	102 9
1868	105 9	99 8	100 3	97.1	84 4	117.0	86 7	120 8	100 8
1869	99.0	107 1	96 0	101 5	88 7	120.0	84 0	121 4	102.0
1870	98.1	104 2	98.5	100.2	91.7	113.0	95 2	116.2	101.6
1871	108.2	107 8	102.2	100 0	93 7	109 6	100 6	116.1	105 0
1872	107.8	116.5	104.2	108.3	111.9	112 9	110 0	123 2	112.1
1873	109 3	117 2	109 8	111.7	129 4	110.0	102 0	121 7	114 3
1874	112.9	118 0	120 5	113 7	107.4	103 7	96.0	119 4	112.6
1875	103.3	118 6	109.1	109.8	98.9	102 5	84 5	118.3	107.3
1876	105.5	116.5	106.9	107.9	97 8	97.1	87 1	112 9	106.1
1877	108.7	114.0	116.8	108.3	91 0	99 6	85 4	108 0	105.6
1878	99 1	105 8	111 6	104 4	86.6	94.1	83 2	105.1	99.7
1879	99 4	102.9	115.6	102 5	77.6	90 8	77.2	100 3	96.8
1880	103 3	110.1	128.5	102.2	81 3	88.9	81 5	102.4	100.8
1881	102.8	113.1	121.8	101 9	78.1	91 3	81.2	97 6	100 1
1882	103.5	116.0	115.7	101 8	80 1	87 5	84.8	99.2	101 0
1883	107.2	116.9	118 3	99 9	76.3	88.2	81 6	99.2	101 0
1884	92.6	112 3	99.8	98.0	72 4	89 2	72.6	97.9	94.4
1885	82.8	105.0	102.8	96.8	68 3	88.2	69 6	95.2	89.9
1886	75.7	99.8	101 7	96 0	64.9	82.5	67.4	91 9	86.0
1887	72.0	97.1	101.2	96 9	66.7	74 9	66.2	90 9	84.3
1888	73.4	96.4	99.8	96 8	69.5	75 6	63.6	89.9	84 3
1889	76 3	97 9	106 0	98.8	72 3	81 9	74 0	91 5	87.7
1890	80 4	97.1	115.2	99.2	76 9	75.3	78.5	89.9	89.4
1891	89.6	98.4	116.3	94.4	78.0	73.9	72 8	90.1	90.3

[1] Aldrich Report, I, p. 295.

Dr. Soetbeer used the simple unweighted arithmetical average. That of the years 1847–1850 was taken as 100. The articles chosen by him were:

I., wheat, flour, rye, rye-meal, oats, barley, malt, buckwheat, peas, white beans, potatoes, hops, clover seed, rape-seed, rape-seed oil, linseed oil, oil-cake, raw sugar, refined sugar, spirits; II., beef, veal, mutton, pork, milk, butter, cheese, tallow, lard, hides, calf-skins, leather, horsehair, bristles, bed-feathers, bones, buffalo horns, glue, eggs, herring, dried fish, train oil; III., raisins, currants, almonds, dried prunes, olive oil, wine (French), champagne; IV., coffee, cocoa, tea, pepper, allspice, cassia bark, rice, sago, arrack, rum, tobacco, indigo, cochineal, log-wood, rosewood, mahogany, rattan, palm oil, ivory; V., coal, iron ore, bar iron, steel, lead, zinc, tin, copper, quicksilver, sulphur, saltpetre (Chili), salt, lime, cement; VI., cotton, wool, flax, hemp, silk, cordage, rags; VII., guano, gum elastic, gutta-percha, resin, pearl ash, pitch, potash, soda, stearine candles, tar, wax; VIII., cotton yarn, plain piece-goods, printed cotton piece-goods, cotton stockings and socks, sewing thread, common glass bottles, linen yarn, plain linen, sail-cloth, woollen and worsted yarn, woollen cloth, flannels, worsteds, carpets.

HEINZ

XV

After Dr. Soetbeer's death (1892), a very important attempt was made by the Director of the *Handelsstatisches Bureau*, Mr. Heinz, in view of the changes instituted in 1888, to collect the data for commodities previous to 1888 which could also be quoted after 1888. By examining the old records, articles imported by sea were separated from others, and a list of one hundred and eighty articles was formed, the quotations of which were continued from 1850 to 1891, when the manuscript figures were sent to Falkner for use in his report.[1] The importance of this material has not been sufficiently recognized. Since the tables comprise actual quotations, without reduction to relative percentages, or total index

[1] Aldrich Report, I, pp. 338–373.

numbers, they await the computations of some future statistician. The list contains seventy out of Soetbeer's one hundred and fourteen articles, and adds one hundred and ten new quotations not included in Soetbeer's list.

PRUSSIAN TABLES

XVI

The Prussian statistical publications[1] provide a carefully prepared table of wholesale prices — some of which run back to 1840 — for seventeen articles, exclusively food products. The quotations are furnished from as many as one hundred and sixty-five markets; the qualities and, if possible, the quantities sold are recorded. The reports are made monthly, and the arithmetic mean is used. A mean price for each province, and a final mean for Prussia, are computed for each article. No index number showing the total outcome of all the prices is given. The articles chosen are as follows: wheat, rye, barley, oats, peas, beans, lentils, potatoes, straw, hay, beef, pork, veal, mutton, bacon, butter, eggs.

IMPERIAL STATISTICS

XVII

The Statistical Bureau of the German Empire,[2] also, has furnished tables of thirty-seven articles, since 1879. The prices are furnished by Chambers of Commerce, or similar bodies, in thirty leading markets of the empire. Quotations for each of the articles are unfortunately not given for the entire period, although a list of about fifteen can be obtained throughout. These fifteen are as follows: wheat, barley, oats, wheat flour, rape-seed oil, raw sugar, refined sugar, Rio coffee,

[1] To 1891 these tables in marks and dollars are given by Falkner, Aldrich Report, I, pp. 301-305.

[2] To 1891 the prices of the fifteen articles have been published by Falkner, *ibid.*, I, pp. 306–307. Conrad used the same fifteen to obtain averages for 1884–1889 and 1890. See *ibid.*, p. 307.

Rangoon rice, pepper, Scotch herring, cotton, tin, English copper, English coal. No index numbers for the total are given.

AUSTRIA-HUNGARY

XVIII

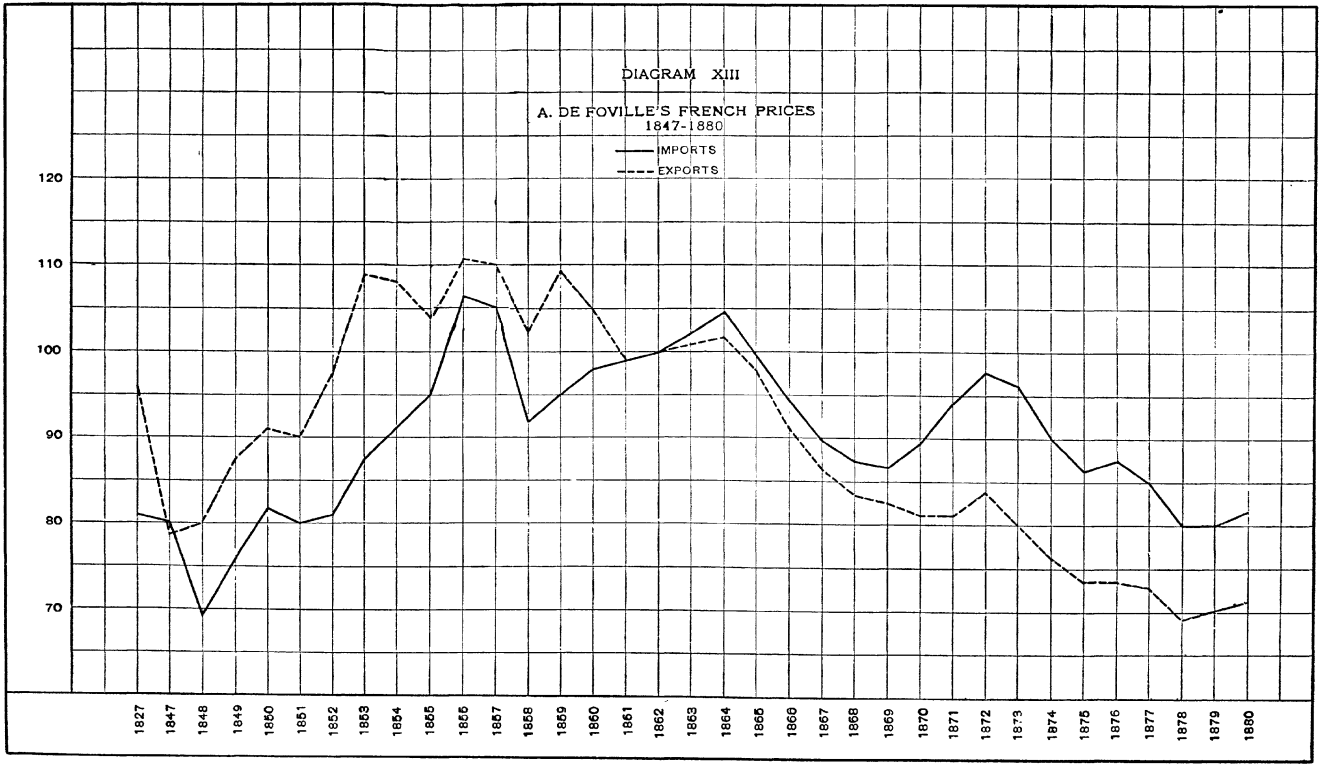
In the volume prepared by the Austrian Ministry of Finance, in connection with the reform of their monetary system, lists of wages and prices have been given from 1830 to 1890, based upon the quotations of thirty-three cities or districts.[1] The tables are not of general importance, because they include only the following nine articles: wheat, rye, barley, corn, oats, potatoes, beef, hay, straw.

FRENCH PRICES—D'AVENEL

XIX

A very extended study of French prices has been made by Vicomte G. d'Avenel in his *Histoire économique de la propriété, des salaires, des denrées, et tous les prix en général, depuis l'an* 1200 *jusqu'en l'an* 1800 (1898), in four large volumes. He has provided the quotations with authorities, localities, etc., in elaborate tables, but the materials have not been reduced to index numbers. In Vol. IV (pp. 585–598) he tabulates, in half-century periods, the average prices of cattle, meat, liquors, fruits, game, fowl, fish, vegetables, butter and eggs, clothing, and tropical products, each separate article in its own column. In Vol. II (appendix) a diagram of the prices of wheat from 1200 to 1550 is given; and, most important of all, a diagram prepared by Levasseur of the average prices of wheat from 1550 to 1891. The materials here collected have not yet been reduced to a form in which valuable comparisons can be made.

[1] For four cities Falkner has given those prices to 1891. Aldrich Report, I, pp. 308–317.


DIAGRAM XIII
A. DE FOVILLE'S FRENCH PRICES
1847-1880
IMPORTS
EXPORTS
120
110
100
90
80
70
1827
1847
1848
1849
1850
1851
1852
1853
1854
1855
1856
1857
1858
1859
1860
1861
1862
1863
1864
1865
1866
1867
1868
1869
1870
1871
1872
1873
1874
1875
1876
1877
1878
1879
1880

DE FOVILLE

XX

In France the sources of materials for prices are the records of the imports and exports at the customs offices. The total values of exports and imports since 1827 had been computed by taking the quantities each year at the average prices of 1827, as obtained by a special *enquête*. By 1847 the discrepancies between the real values and the official values became very marked. Then there was established the *Commission Permanente des Valeurs de Douane*, charged with the duty of ascertaining each year the average prices of the preceding year. This commission consists of over one hundred members, who, as experts, fix upon the actual prices of goods irrespective of the invoices. The quantities and descriptions are taken from the declarations at the customs offices. Up to 1862 the commission recorded, not only the *actual* but the *official* values (the latter being computed according to the method in use before 1847). A. de Foville[1] found that by comparing both these total values, it would be possible to get for each year a value relative to that of 1827. In 1862 began the *Documents statistiques*, which give monthly returns of international trade. In each January these papers give the totals for the preceding twelve months. Each January (*e.g.*, 1881) a provisional total value is obtained by computing the quantities of the preceding year (*e.g.*, 1880) at the prices of the year before (*e.g.*, 1879); then a few months later, the definitive average prices (*e.g.*, of 1880) are obtained, and the correct total value is published. The proportional variations between these two sets of valuations provide a means of obtaining the change in the level of prices in each year. On this basis De Foville has prepared a table showing the changes in French prices for imports and exports since 1847 (and a comparison with 1827) to 1880, using 1862 as a basis of 100:

[1] L'Économiste français (April 29, 1882), pp. 503–505.

DE FOVILLE'S ANNUAL VARIATIONS OF THE GENERAL LEVEL OF FRENCH PRICES, 1847–1880.

Year.	Imports.	Exports.
1827	81	96
1847	80	78 (Min.)
1848	69 (Min.)	80
1849	76	87.5
1850	82	91
1851	80	90
1852	81	98
1853	88	109
1854	91	108
1855	95	104
1856	106.5 (Max.)	111.5 (Max.)
1857	105	110
1858	92 (Min.)	102
1859	95	109
1860	98	105
1861	99	99 (Min.)
1862	**100**	**100**
1863	102.5	100.8
1864	104.5	101.3 (Max.)
1865	99.2	97 8
1866	93.5	91.5
1867	89.7	87
1868	87.2	83.5
1869	86.6 (Min.)	82.9
1870	89 3	81 2
1871	93.9	81.4
1872	97.3 (Max.)	83.3
1873	96.1	80.3
1874	89.9	76.6
1875	86.7	73.8
1876	87.5	73.9
1877	85.5	72 9
1878	80 (Min.)	68.8 (Min.)
1879	80	70.3
1880	82	71.7

PALGRAVE'S FRENCH PRICES

XXI

In the *Third Report of the Royal Commission on the Depression of Trade and Industry*, Appendix, pp. 354–361, Mr. R. H. Inglis Palgrave has collected, from information given him by M. Léon Say and M. de Foville, and from the figures of the *Commission Permanente des Valeurs de Douane*, two tables of French prices for the period from 1865 to 1884

for twenty-two articles. The index number of 2200 (or 100) is taken to represent the average price of the years 1865–1869. The articles chosen and the method of computing the

Year.	Table 28.	Table 28 reduced to scale of 100.	Table 29.	Table 29 reduced to scale of 100.
1865	2,267	103	2,331	106
1866	2,314	105	2,380	108
1867	2,207	100	2,144	97
1868	2,126	97	2,110	96
1869	2,087	95	2,045	93
	2,200	100	2,200	100
1870	2,137	97	2,000	91
1871	2,283	104	2,250	102
1872	2,434	111	2,310	105
1873	2,423	110	2,300	105
1874	2,223	101	2,125	97
1875	2,243	102	2,085	95
1876	2,196	100	2,090	95
1877	2,241	102	2,107	96
1878	1,950	89	2,010	91
1879	1,898	86	1,915	87
1880	1,941	88	1,937	88
1881	1,880	85	1,900	86
1882	1,845	84	1,855	84
1883	1,807	82	1,756	80
1884	1,679	76		

index numbers in Table 28 are as nearly as possible like those of the *Economist*. Table 29, however, introduces a method of ascertaining the relative importance of articles by finding the value of the actual imports into France of each commodity, as compared with the total value of the imports of all the twenty-two articles; *e. g.*, in 1871, the importance of wheat was expressed by 330, and of butter by 6, out of the total 2200; but, in 1877, wheat was expressed by 166, and butter by 11. The final results of both methods are here given in parallel columns. In Table 28 the articles are:

Coffee, sugar, wheat, beef, butter, rice, tobacco, oil-seed, olive oil, tallow, raw silk, silk stuffs, gloves, raw cotton, raw wool, woollens, hides, coal, iron ore, copper ore, lead ore, and zinc.

FALKNER'S FRENCH PRICES

XXII

In the Aldrich Report Falkner[1] published tables of separate prices for each of thirty-eight commodities from 1861 to 1891, taken from the materials provided by the French commission above mentioned. But no reduction of these figures to the convenient form of index numbers has been made. The articles chosen are:

Beeves, cows, calves, sheep, hogs, butter, wheat, rice, sesamum, linseed, olive oil, sugar (brown, native), tobacco (leaf), coffee, skins (large, raw), skins (sheep, raw), skins (lamb, raw), skins (kid, raw), coal, iron ore, copper ore, lead ore, zinc, cotton, cotton batting, wool, silk (in cocoons), silk (unbleached, raw), silk (unbleached, thrown), cotton thread (simple, unbleached), woollen yarn, silk goods (pure, figured), silk goods (mixed), merinos, blankets, carpets, tapestry, gloves.

ITALIAN PRICES

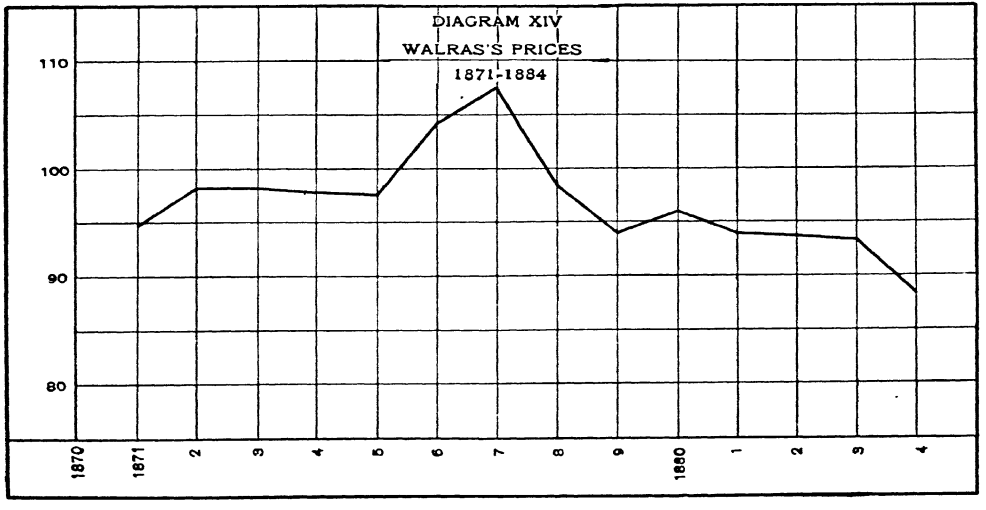
XXIII

The Royal Bureau of Statistics published[2] a detailed study of the prices of six articles of food from 1862 to 1885. The quotations were taken from weekly prices of several markets in Italy. The articles chosen were: wheat, corn, rice, wine, olive oil, and beef. No index numbers for the combined result were computed.

Also in the *Annuario Statistico Italiano* (1900), pp. 533–548, the prices of numerous exports and imports are given since 1879, the year of the establishment of a special commission. These figures are published by the Ministry of Agriculture, Industry, and Commerce.

[1] Aldrich Report, I, pp. 318–322.

[2] Novimento dei prezzi di alcuni generi alimentari dal 1862 al 1885 e movimento delle mercedi, contavelo grafiche, Roma, 1886. Cf. also Aldrich Report, I, p. 323.


DIAGRAM XIV
WALRAS'S PRICES
1871-1884
110
100
90
80
1870
1871
2
3
4
5
6
7
8
9
1880
1
2
3
4

SWISS PRICES — WALRAS

XXIV

Léon Walras (*Études d'économie politique appliquée*, ed. 1898, pp. 51–65) has published the prices of twenty articles at Berne for the years 1871–1884. The figures were taken from the *Statistiches Jahrbuch für den Kanton Berne*, or from materials in the hands of that bureau of statistics. Using 1871–1878 as the base, he finds that in the period 1879–1884 there was a relative fall of gold prices of 6.73 per cent. The annual averages have been computed by the geometric mean. The articles chosen are: German wheat, wheat, barley, rye, oats, bread (white), bread (half white), beef, mutton, veal, butter, lard, bacon, eggs, potatoes (white), potatoes (red), hay, straw, firewood (beech), firewood (fir). The general results are as follows:

Year	Geometrical mean. 1871–1878 = 100.	Year.	Geometrical mean. 1871–1878 = 100.	Year.	Geometrical mean. 1871–1878 100
1871	0 945	1876	1.046	1881	0 939
1872	0.980	1877	1 074	1882	0 935
1873	0.980	1878	0 982	1883	0 930
1874	0.977	1879	0 939	1884	0.882
1875	0.975	1880	0.958		

AMERICAN PRICES — BURCHARD

XXV

§ 10. Mr. H. C. Burchard, in his report as Director of the Mint for 1881, gave the results of calculations of average prices in New York for the fifty-six years from 1825 to 1880. The figures are printed in the *Report on the Finances*, 1881, pp. 312–321. They are continued for the year 1881 in the *Report on the Finances*, 1882, pp. 252–254; for the year 1882 in *ibid.*, 1833, pp. 316–318; and for the years 1883 and 1884 in the *Report of the Director of the Mint on the Production of the Precious Metals*, 1884, pp. 499, 500. Mr. Burchard's first table, for the years 1825–1880, is reprinted without change in the *Quarterly Reports of the Bureau of Statistics*,

1883–1884, No. 3, pp. 328–387, and is again reprinted, still without change, in the *Quarterly Reports*, etc., 1885–1886, No. 3, pp. 556–565. Mr. Burchard wrote in 1881: "The prices quoted were obtained for the years 1825 to 1874, inclusive, from the tables of their average prices in New York, found in the *Finance Reports* of 1863, 1873, and 1874. [See *Finance Report*, 1863, pp. 284–361; *ibid.*, 1873, pp. 502–541; *ibid.*, 1874, pp. 557–561.] For the succeeding six years they were compiled in this office from the published semi-weekly quotations in the New York *Shipping and Commercial List*, from which paper, it is understood, the quotations were taken in compiling the tables found in the *Finance Reports*." An examination of the *Finance Report* tables indicates that they were not compiled with great care. The price of an article will run along without change from month to month; then, suddenly, it will rise or fall sharply. The prices of articles that normally would fluctuate together (pig and bar iron, butter and cheese) show a very loose correspondence. Moreover, the same articles do not appear from year to year. An article will be quoted for a number of years, will then disappear, and later, perhaps, will reappear. Thus, flax does not appear till 1864, is quoted till 1878, and drops out thereafter. Again, all the *Finance Report* prices are not used in Mr. Burchard's tables. His averages, as finally given, are obtained from the prices of eighty-two articles in 1825, eighty-one in 1862, sixty-eight in 1864, sixty-five in 1880, and ninety in 1884. Pork is quoted in ten forms for 1884, in only three forms in 1880; and it does not appear whether each form of pork was used as an independent factor in calculating the final result, or whether all were averaged in order to give one figure for pork. For the years 1862–1878, the prices are reduced to a gold basis; but it is not indicated in what manner this reduction was effected.

For good reasons, therefore, it has not seemed desirable to present this table. It can be found in the *Quarterly Journal of Economics*, April, 1887, p. 398.

ALDRICH REPORT TABLE

XXVI

The only important table of American prices is that published in the Aldrich *Senate Report*[1] in 1893, compiled under the direction of Professor Roland P. Falkner. The large number of articles quoted would alone give it precedence. Continuous lists of prices for ninety commodities have been gathered from 1840 to 1891; and for the period from 1860 to 1891, for the extraordinary number of two hundred and twenty-three commodities. In this respect it surpasses any European table, and of course any other for the United States.

The prices for the year 1860 were selected as the base, or 100, because it afforded the earliest date from which the continuous list of two hundred and twenty-three articles could be had, and because the conditions of that year were normal.[2] The sources were the books of merchants and manufacturers opened to assistants of the Committee. The quotations, however, are usually those of a single date in the year, such as January 1st, although the prices of other times in the year were taken for articles whose winter prices would be abnormal. In this feature the table is far less satisfactory than the Hamburg and some other lists of prices.

The results are presented in both the weighted and the unweighted form. An attempt was made to apply Palgrave's suggestion of weighting, but it proved, as was to be expected, impracticable;[3] Mr. Falkner then introduced the method of

[1] Report by Mr. Aldrich from the Committee on Finance, March 3, 1893, Senate Doc., 52d Cong., 2d Sess., No. 1394. Wholesale Prices, Wages, and Transportation, Part I, Vol. I.

[2] Mr. Falkner urged that it was impossible to take the average of a series of years as a starting-point, because the years before and after 1860 had been marked by great disturbances within the country; and yet he adds that the prices of 1860 varied little from those of 1858, 1859, or 1861 (p. 28). He urges this as a reason for taking the single year 1860. If so, why not have taken the average of the four years 1858–1861? But, doubtless, the result would not have been different.

[3] Cf. Aldrich Report, I, pp. 88–90.

weighting according to the importance of articles in the consumption of 2561 family budgets obtained from the United States Commissioner of Labor. The difficulties in finding the expenditure on separate articles in each group of food, clothing, fuel, etc., do not seem to have been wholly surmounted; and, in all, only 68.6 per cent of the expenditure was supposed to be affected.[1]

The two hundred and twenty-three articles separated into the groups are as follows:[2]

I., Food: Beans, shipbread (3), Boston crackers (2), oyster crackers, ship biscuits, soda crackers, butter, cheese, coffee (Rio, fair), eggs, cod, mackerel (3), wheat flour, rye flour, dried apples, currants, raisins, lard (2), corn meal, bacon, beef (3), ham, lamb, mutton, salt pork, milk, molasses (2), rice, salt (5), nutmegs, pepper, cornstarch (2), sugar (4), tallow, potatoes (2); II., Cloths and Clothing: blankets (2), broadcloths (2), calico, carpets (3), cassimeres (all wool) (4), checks (all wool), cotton, denims, drillings, hides, horse-blankets, leather (harness), print cloths (2), shawls (wool), sheetings, shirtings, sole-leather, tickings, wool (2); III., Fuel and Lighting: candles, anthracite coal (7), bituminous coal, matches; IV., Metals and Implements: anvils, bar-iron, butts, copper (2), door-knobs, iron rods, iron wire, lead shot, lead (2), locks (2), meat-cutters, cut nails, pig-iron, pocket-knives (25), quicksilver, rope (3), saws (4), scythes, shovels, spelter, wood screws; V., Lumber and Building Materials: brick, carbonate of lead, cement, chestnut, pine doors, hemlock (2), lime, maple, oak, oxide of zinc, pine (8), plate glass (6), putty, shingles (pine) (3), spruce, tar, turpentine, window glass (3); VI., Drugs and Chemicals: alcohol, alum, potash, vitriol, brimstone, calomel, copperas, flax-seed, glycerine, linseed oil, mercury, muriatic acid, opium, quinine, soda ash, sugar of lead (2), sulphuric acid; VII., House Fur-

[1] See pp. 60–88. For a criticism, see F. W. Taussig, Yale Review, Nov., 1893. Also published in Bulletin l'Institut Intern. de Statisque, VIII, 1895. See *supra*, p. 155.

[2] Not all articles whose prices are given in Table I are included in the two hundred and twenty-three; those excluded are: Boston crackers (one grade), sugar (one grade), iron rails, sheet zinc, pine shingles (one grade), window glass (one grade).

NISHING GOODS: furniture (3), glassware (5), pails 3, tubs (4); VIII., MISCELLANEOUS: powder (2), rubber (Para), soap (Castile), starch (6).

ALDRICH PRICES (1862–1879 in Paper).

TABLE I.

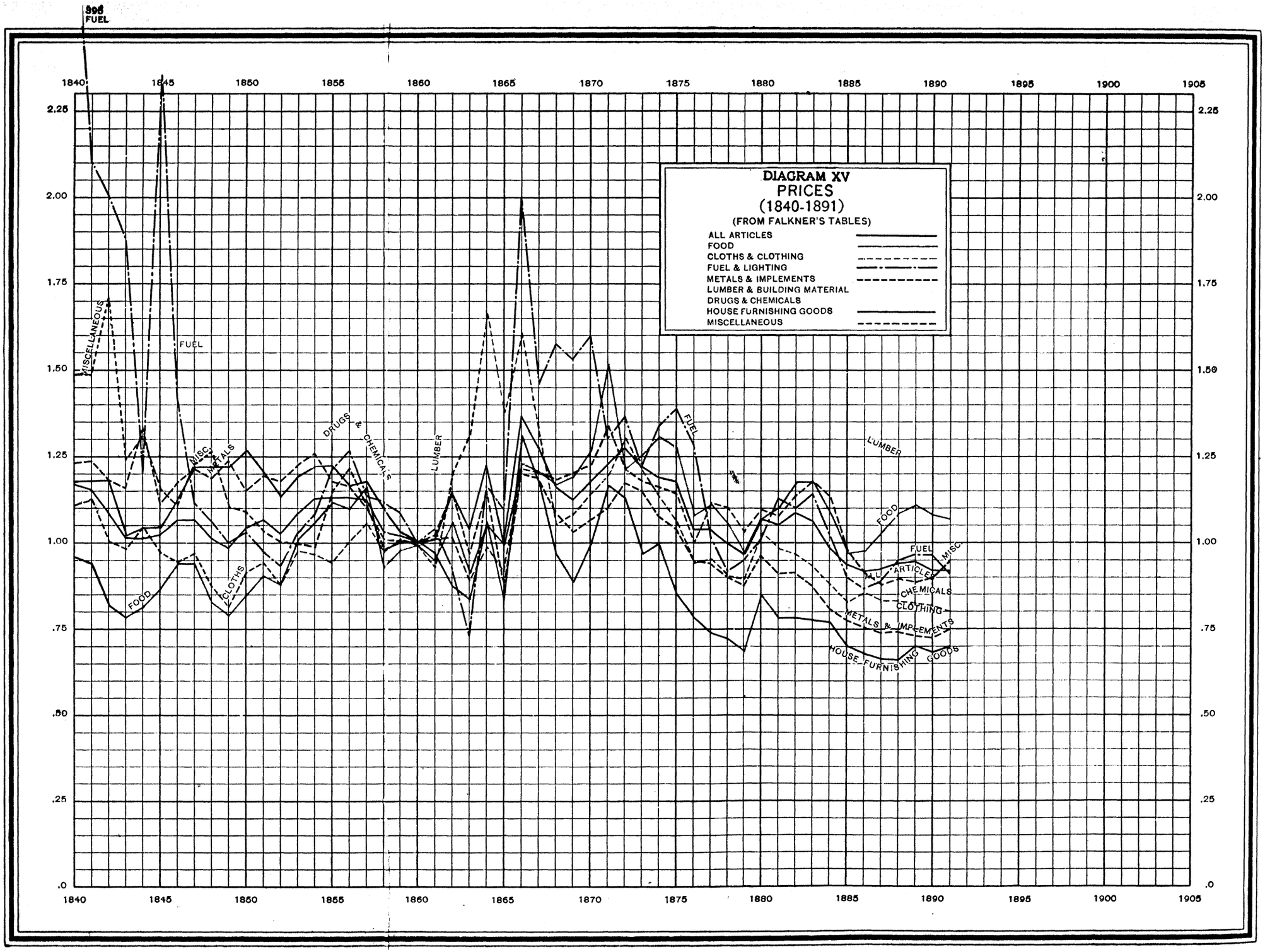
Year.	Food.	Cloths and Clothing.	Fuel and Lighting.	Metals and Implements.	Lumber and Building Materials.	Drugs and Chemicals.	House Furnishing Goods.	Miscellaneous.	All Articles
1840	96.6	110.7	395.8	123.5	110.0	145.8	116.4	147.1	116.8
1841	94.4	113.4	208.9	123.7	111 8	141.3	116 4	147.1	115.8
1842	82.9	100 9	202 0	118.7	108.8	131.6	116.4	170.6	107.8
1843	79.3	99.9	187.5	114.7	105.4	121.4	100.3	123 5	101.5
1844	81.6	105.0	119 7	133 3	103 0	119 7	102 3	129 5	101.9
1845	87.3	97.1	239 6	110 8	106.7	121.0	102.3	114.8	102.8
1846	94.6	95 3	143.8	116.9	106 2	123.9	111.0	111.0	106 4
1847	94.7	97.6	110.7	120.6	108 2	112 5	120.3	121.7	106.5
1848	83.5	87.5	106.1	119.7	105.3	113 0	121.7	125 6	101 4
1849	79.0	82.2	100.0	124.9	97.6	111 0	120.5	109.8	98 7
1850	85.5	91.3	102.6	114.8	102 2	123.6	125.6	107.7	102 3
1851	90.6	94.7	97.3	119.2	97.2	125 8	120 0	102.7	105.9
1852	88.7	88.7	93.5	117.7	100.4	111.8	111 9	100.5	102.7
1853	101.2	98.6	101.6	122.8	103 2	107 0	118 7	109.2	109.1
1854	105.9	97.4	106.8	125.6	114.1	110 7	121.2	108 4	112.9
1855	111.8	94.7	121 1	117.8	103.4	129.2	121.2	115.2	113.1
1856	110.4	100 6	126.4	115.3	102 8	135.5	115.5	121 6	113 2
1857	117.5	106.0	113.3	110.4	105 0	126 8	116.8	110.0	112 5
1858	94.6	98.0	111.4	101 3	103.8	116.0	108 7	97 1	101.8
1859	98.8	101.1	98.8	100.1	98.7	104.2	103 2	100 8	100.2
1860	100.0	100,0	100.0	100.0	100 0	100.0	100.0	100.0	100.0
1861	95.8	94 9	103.5	102 5	108 9	101 3	96 8	100.7	100.6
1862	110.4	124.1	97.2	117.2	149 2	116 4	89 5	103.7	117 8
1863	133.0	191.6	107.1	140 0	177.1	146.5	123.1	129 1	148.6
1864	165.8	260.7	180.2	179 8	221.3	170.3	164 6	154.4	190 5
1865	216.5	299.2	237.8	191.4	182.1	271.6	181.1	202.8	216 8
1866	173.8	226.6	280.5	171.1	186 9	230 2	185 3	171.0	191 0
1867	163.9	179.9	196.3	161.3	178.8	211 2	159.1	161.4	172,2
1868	164.2	146.8	218.7	150.5	174 3	177 9	134.9	164.1	160.5
1869	162.9	147.5	206.8	141.3	165 9	160 9	120.7	162.3	153 5
1870	153 8	139.4	196.5	127.8	148 3	149 6	121.6	148.7	142.3
1871	169.3	133.3	144.1	122 2	151.4	139 4	128.5	148.8	136.0
1872	133.3	143.0	149.2	128.0	166.9	134.0	123.2	132 7	138.8
1873	129.8	136.9	134.6	129.8	171.9	141.5	109 1	132.4	137.5
1874	131.5	127.9	149 6	121.1	154 9	146.8	109 5	129.8	133.0
1875	130.5	120.1	156.5	117.5	143 7	144.2	95.0	122 9	127.6
1876	123.1	107.5	144.6	108 4	137.3	121.8	87.2	114 2	118.2
1877	120 3	101.8	108.0	100 0	125.8	122 3	79 0	118 2	110 9
1878	107.0	93.2	93.0	92 1	116.8	114.2	74.3	111.7	101 3
1879	97.6	91.1	95.3	88.4	115.1	110.9	68.6	102 1	96.6
1880	107.6	104.5	100.2	96.3	130 9	113.1	85 2	109 8	106.9
1881	110.9	99.9	113.7	91.1	131.3	110 4	77.6	108 8	105 7
1882	118 8	98.7	110.1	91.2	137 5	107.6	78.1	114 6	108.5
1883	118.8	94.8	114.2	87.5	134.3	98.1	77.5	117 3	106.0
1884	108.9	88.9	102.4	81 0	129 5	95 7	76.3	111 9	99 4
1885	98.7	84.8	89.6	77.4	126.6	86 9	70.1	97 5	93 0
1886	99.5	85.1	86 2	75.8	128.5	83.9	68.4	91.3	91 9
1887	104.2	84.7	88.6	74 9	126 5	83 6	66.4	88 6	92.6
1888	109.4	84.7	94.9	74 9	124.8	86.0	66 9	89 3	94.2
1889	111.9	83.6	95.3	72.9	124 0	88.8	70 0	88 8	94.2
1890	104.6	82.4	92.5	73.2	123.7	87 9	69.5	89.7	92.3
1891	103.9	81 1	91.0	74.9	122.3	86.3	70.1	95 1	92.2

Table I gives the index numbers of two hundred and twenty-three quotations computed on the principle of a simple arithmetical average. Moreover, this primary table, being based on actual quotations, gives for the years 1862–1878 prices in terms of the depreciated paper standard existent in that period. At one time the paper had depreciated to 35 cents on the gold dollar.

In order to make comparisons with tables of prices in other countries expressed in gold, the paper prices of Table I for the years 1862–1878 were reduced to the gold standard, by using the premium on gold as the measure of the depreciation of the paper. This method was the only one available; but it could not be exact, since the paper prices evidently rose at times to compensate for the uncertainty in the standard, consequently actual gold prices, had we maintained a gold standard throughout these seventeen years, would not have shown variations due to such influences. The computations for the same groups of Table I, reduced to gold in 1862–1878, when inserted instead of the paper prices for the same period, give a continuous list from 1840 to 1891, in gold. The figures to be inserted are as follows:

GOLD PRICES, 1862–1878.

Year.	Food.	Cloths and Clothing.	Fuel and Lighting.	Metals and Implements.	Lumber and Building Materials.	Drugs and Chemicals.	House Furnishing Goods.	Miscellaneous.	All Articles.
1862	107.7	121 1	94.8	114 3	145.6	113.6	87 3	101 2	114 9
1863	91.7	132.0	73.8	96 5	122 1	101.0	84.8	89 0	102.4
1864	106.6	167.7	115 9	115.6	142.3	109.5	105 9	99 3	122 5
1865	100 1	138 4	110 0	88.5	84.2	125 6	83.8	93.8	100 3
1866	124 1	161.7	200.2	122.1	133.4	164.3	132 3	122.1	136.3
1867	121 8	133 7	145 8	119 8	132 8	156.9	118.2	119.9	127.9
1868	118 6	106 0	157 9	108 7	125.8	128 4	97.4	118.5	115 9
1869	120 1	108.8	152.5	104 2	122 3	118.7	89.0	119.7	113.2
1870	126.8	114 9	162 0	105 4	122 3	123 3	100 2	122.6	117 3
1871	152 9	120 4	130.2	110 4	136 8	125 9	116 1	134.4	122.9
1872	122 2	131.1	136 8	117.3	153.0	122.8	112.9	121.6	127.2
1873	115 2	121 5	119 4	115.2	152 5	125.6	96 8	117 5	122.0
1874	118.0	114.8	134 3	108.7	139 0	131.8	98 3	116.5	119 4
1875	116.0	106 8	139.1	104 4	127 7	128 2	84.4	109 2	113 4
1876	109 1	95.3	128.2	96 1	121.7	108.0	77.3	101 2	104.8
1877	113 3	95.9	101.7	94 2	118 5	115 2	74.4	111.3	104 4
1878	105.5	91.9	91.7	90 8	115.2	112 6	73.3	110.2	99 9


DIAGRAM XV
PRICES
(1840-1891)
(FROM FALKNER'S TABLES)
ALL ARTICLES
FOOD
CLOTHS & CLOTHING
FUEL & LIGHTING
METALS & IMPLEMENTS
LUMBER & BUILDING MATERIAL
DRUGS & CHEMICALS
HOUSE FURNISHING GOODS
MISCELLANEOUS
1840
1845
1850
1855
1860
1865
1870
1875
1880
1885
1890
1895
1900
1905
2.25
2.00
1.75
1.50
1.25
1.00
.75
.50
.25
.0
MISCELLANEOUS
FUEL
MISC.
METALS
DRUGS & CHEMICALS
LUMBER
CLOTHS
FOOD
FUEL
LUMBER
FOOD
FUEL
MISC
ALL ARTICLES
CHEMICALS
CLOTHING
METALS & IMPLEMENTS
HOUSE FURNISHING GOODS

To carry out the theory of weighting each article according to its importance for the consumption in the budgets of a number of families,[1] the weighted averages are given alongside the arithmetical averages. In one column certain expenditures are considered uniform, in another the importance is based on 68.6 per cent of the total expenditure. These results should be taken with the cautions advised by Professor Falkner (p. 93).

ALDRICH PRICES, 1840–1891, ARITHMETICAL AND WEIGHTED AVERAGES.

TABLE II.

I. Year	II. Simple Arithmetical Averages. All Articles.	III. All Articles Averaged according to Importance, certain Expenditures being Uniform.	IV. All Articles Averaged according to Importance, 68.6 per cent of Total Expenditure.	I. Year.	II. Simple Arithmetical Averages All Articles.	III. All Articles Averaged according to Importance, Expenditures being Uniform.	IV. All Articles Averaged according to Importance, 68.6 per cent of Total Expenditure.
1840	116.8	98.5	97.7	1866	191.0	160 2	187.7
1841	115.8	98.7	98.1	1867	172 2	145.2	165.8
1842	107.8	93.2	90.1	1868	160.5	150.7	173.9
1843	101.5	89.3	84.3	1869	153.5	135.9	152.3
1844	101.9	89.8	85.0	1870	142.3	130.4	144.4
1845	102.8	92.1	88.2	1871	136.0	124.8	136.1
1846	106.4	96.7	95.2	1872	138.8	122.2	132.4
1847	106.5	96.7	95.2	1873	137.5	119.9	129 0
1848	101 4	92.0	88.3	1874	133 0	120.5	129.9
1849	98.7	88.9	83.5	1875	127.6	119.8	128.9
1850	102.3	92 6	89.2	1876	118.2	115.5	122.6
1851	105.9	99 1	98.6	1877	110.9	109.4	113.6
1852	102.7	98.5	97.9	1878	101.3	103.1	104.6
1853	109.1	103.4	105.0	1879	96.6	96.6	95.0
1854	112.9	103.4	105.0	1880	106.9	103.4	104.9
1855	113.1	106.3	109.2	1881	105.7	105.8	108.4
1856	113.2	108.5	112.3	1882	108.5	106.3	109.1
1857	112.5	109.6	114.0	1883	106.0	104.5	106.6
1858	101.8	109.1	113.2	1884	99.4	101.8	102 6
1859	100 2	102.0	102.9	1885	93.0	95.4	93 3
1860	100 0	100.0	100.0	1886	91.9	95.5	93.4
1861	100.6	95.9	94.1	1887	92.6	96.2	94.5
1862	117.8	102.8	104.1	1888	94.2	97.4	96.2
1863	148.6	122.1	132.2	1889	94.2	99 0	98 5
1864	190.5	149.4	172.1	1890	92.3	95.7	93.7
1865	216.8	190.7	232.2	1891	92.2	96.2	94.4

[1] Aldrich Report, I, pp. 92–93.

Table II having been made up from Table I, the figures for the years 1862–1878 are based on paper prices. In the following table the figures based on the reduction to gold can be inserted in the table last given, and the series from 1840 to 1891 in gold will be continuous:

GOLD INDEX NUMBERS, 1862–1878.

Year.	All Articles simply Averaged.	All Articles Averaged according to Importance, Certain Expenditures being considered Uniform.	All Articles Averaged according to Importance, Comprising 68.6 per cent of Total Expenditure.
1862	114.9	100.3	101 6
1863	102.4	84.1	91.1
1864	122.5	96.1	110.7
1865	100.3	88.2	107.4
1866	136.3	114.3	134.0
1867	127.9	107.9	123.2
1868	115.9	108.8	125.6
1869	113.2	100.2	112.3
1870	117.3	107.5	119 0
1871	122.9	112.7	122.9
1872	127.2	112 0	121 4
1873	122.0	106.4	114.5
1874	119.4	108.2	116.6
1875	113.4	106.5	114.6
1876	104.8	102.4	108.7
1877	104.4	103 0	107.0
1878	99.9	101.7	103.2

FALKNER'S LATER PRICES

XXVII

The lists of prices in the Aldrich Report ended in 1891; but Professor Falkner, under whose supervision the tables were prepared, was recently commissioned by the National Department of Labor[1] to prepare a series of wholesale prices from 1890 to 1900. Naturally, the attempt was made to continue as far as practicable the results of the Aldrich Report; but the progress of industry has eliminated many

[1] Bulletin of the Department of Labor, No. 27, March, 1900, Washington, Government Printing Office.

FALKNER'S WHOLESALE PRICES, JAN., 1890, TO JULY, 1899.

Date.	Food.	Cloths and Clothing.	Fuel and Lighting.	Metals and Implements.	Lumber and Building Materials.	Drugs and Chemicals.	House Furnishing Goods.	Miscellaneous.	All Articles.
Jan. 1890	99.2	101.9	99.0	106.8	104.1	104.5	100.0	94.1	102.0
April 1890	97.8	102 2	99.5	103.5	104.2	112.1	100 0	97.6	101.9
July 1890	95.5	102 1	100.7	105.3	98.8	104 5	100 0	103.8	100.4
Oct. 1890	103 3	102 4	100.6	105.7	101.1	105.4	100.0	104.5	103.1
Jan 1891	103.0	100 3	100.6	98.1	100.5	97.4	102.2	100.4	100.6
April 1891	104 8	98.5	99 7	97.5	99.3	100.1	100.0	104 0	100.7
July 1891	99.6	97.9	100.7	95.1	97.1	92.0	100 0	101.5	97.7
Oct. 1891	101 5	97.6	99 8	94.0	97.7	92.2	100.0	97.5	97 9
Jan. 1892	98.1	97.0	99 6	94.1	97.1	91 2	98.3	96.8	96.5
April 1892	93 3	96 0	97 9	92.3	96.9	85.7	96 8	99 3	94.2
July 1892	94.8	96.2	98 9	92.3	95.0	88.3	96 5	95.9	94.5
Oct. 1892	97.7	96 3	99.3	90.7	94.6	87.6	95.9	90.9	94.7
Jan. 1893	103.8	98 9	104.1	88 9	97.7	88 3	92.7	89 8	97.2
April 1893	102 6	98.3	103 3	89.4	94.5	91.4	90 7	92.7	96.6
July 1893	96.1	95.6	105.2	87.6	92.6	87.0	88.9	86.9	93.1
Oct 1893	101.0	93 0	105 2	84.4	93.1	81.9	87 9	87.1	93 0
Jan. 1894	94.2	90 0	105 8	80.6	91.2	83.1	84.2	87.0	89.6
April 1894	87.8	87.8	100 8	79 0	88.7	86.8	83 0	85.1	86.7
July 1894	87.5	86.2	102.0	79.4	87.4	83.6	83.3	86.2	86 0
Oct. 1894	93 3	85.4	101.6	78.2	86.9	82.1	82.7	84.5	86.9
Jan. 1895	90 3	80.0	100.8	76.1	87.8	83 7	78 5	84.3	84.7
April 1895	91.5	79 4	96.4	75 9	88.4	82 0	79 5	83 3	84.7
July 1895	87.9	83.6	96.4	84.7	86.4	78 9	76.2	83.1	85 2
Oct. 1895	85.8	88.3	98.6	89 1	85.4	75.7	81 8	83.9	86.3
Jan 1896	84.4	87.2	97 5	83.7	85.6	81 9	79 2	84.2	85.2
April 1896	80 2	83.3	97.7	85.6	83.1	82.0	77.8	82.3	83.0
July 1896	75 8	81.4	100 1	85.4	81.8	82.4	78.1	88.5	81 5
Oct. 1896	78 9	82 8	100 9	83.7	82.4	80.1	79 2	88.5	82.4
Jan. 1897	79.6	82 3	99.3	80.1	83.1	81 9	76.7	88.4	82.0
April 1897	78 2	81.4	97.8	78.8	83.0	77.9	78 7	89.2	80.9
July 1897	76.0	81.4	97.8	77.4	82.6	77 0	78 4	89.6	79 9
Oct. 1897	83.1	83 0	97,8	80.6	85.7	81.5	76.4	91.6	83.6
Jan. 1898	83 4	80 8	96.1	79.4	86.5	86.3	74 1	90 5	83 3
April 1698	82 9	80 9	94.4	79.7	86.7	85.4	74 9	94.1	83.3
July 1898	83.2	80 9	95.5	81.4	86.0	92.1	73 8	94.6	84.2
Oct. 1898	84.2	80.3	93.6	81.6	88 3	88 9	74 9	93.6	84.4
Jan. 1899	86 6	80.7	90.8	83.2	94.1	90.7	79 5	94.3	86.5
April 1899	87.1	82.5	91.2	98.1	97.1	97 8	86.5	96.6	90 8
July 1899	85 9	84.5	89.8	107.9	99.9	95.9	92.1	95.7	92.9

articles and introduced new ones; nor could the same sources of information be used. In the Aldrich tables separate quotations of two hundred and twenty-three articles were given; but if the prices of different varieties of the same commodity were merged, there would be only one hundred and forty-two series of actual prices. Additions, as well as omissions, were made by Mr. Falkner in the new table, finally obtaining ninety-nine series of relative prices for 1890–1900. Ninety articles are quoted in both tables. In the Aldrich Report each quotation, even for each variety of a commodity, had equal importance in computing the average

for the group; but in the new tables where relative prices are given for two or more articles of the same kind, their average is taken, and this represents only a single item in calculating the average for the group.

In the Aldrich Report the figures for January, 1860, — or one single date, — were used as the basis for 100; in the new tables the average [1] of the nine quarterly prices from January, 1890, to January, 1892 (of which January, 1891, the conclusion of the Aldrich Report was the exact centre) was taken as 100. Also, prices at each quarter of the year were used, instead of using (as in the Aldrich Report) the quotations on only one date in the year.

The method of weighting the index numbers according to the importance of the articles in the consumption of family budgets was also applied to this list of prices, with the following results:

Date.	All Articles simply Averaged.	All Articles Averaged according to Importance, Certain Expenditures being Considered Uniform.	All Articles Averaged according to Importance, Comprising 68.6 per cent of Total Expenditure.
January, 1890	102.0	100.1	100 2
" 1891	100.6	102.2	103.2
" 1892	96.5	100.0	100 1
" 1893	97.2	103.4	105.0
" 1894	89.6	97.5	96.4
" 1895	84.7	93.5	90.5
" 1896	85.2	92.8	89.5
" 1897	82.0	90.3	85.9
" 1898	83 3	91.0	86.8
" 1899	86.5	91.0	86.8

To obtain an approximate continuation of the series of the Aldrich Reports down to 1900, the average relative prices of the ninety articles common to both investigations have been separated, and compared as follows:

[1] The averages of the relative prices of ninety-nine articles for these dates is 100.6, while if January, 1891, had been taken as the base, the relative price would have been 100. The divergence is, therefore, very slight.

Date.	Average Relative Prices of Ninety Articles.	
	According to Present Investigation.	In Terms of 1860 Prices.
January, 1890	101.7	97.5
" 1891	100.8	96.6
" 1892	96.4	92.4
" 1893	97.3	93.2
" 1894	89.8	86.1
" 1895	85.1	81.5
" 1896	85.1	81.5
" 1897	82 0	78.6
" 1898	83.9	80.4
" 1899	87.2	83.6

A MORE COMPLETE BIBLIOGRAPHY ON PRICES[1]

EARLY PERIOD: RICE VAUGHAN, *Discourse of Coin and Coinage* (1675), pp. 101–136. (Uses wages as test of prices, and asserts prices, in 1350–1650, have nearly trebled, and hence coins have depreciated nearly one-third as compared with goods.) — W. FLEETWOOD, *Chronicon preciosum* (1707). (£5 would buy in 1440 as much as £28 or £30 in 1700, as deduced from prices.) — DUTOT, *Réflexions politiques sur les finances et le commerce* (1738), I, pp. 365–377. (Compares prices of Louis XII. and Louis XIV. with arithmetical average.) — G. R. CARLI, *Del Valore e della proporzione de' metalli monetati con i generi in Italia*, etc. (1764), ed. Custodi I, pp. 299–366. (Uses prices of grain, oil, and wine about 1500 as basic units and reduces those of about 1750 to proportions of former, with arithmetical average.) — SIR G. SHUCKBURGH EVELYN, *Of some Endeavors to Ascertain a Standard of Weight and Measure* (1798), Philos. Trans. Royal Soc. (1798), pp. 308–309. (From twelve agricultural articles, meat, and labor, he computes mean depreciation of money from 1050 to 1800, taking 1550 as base, with unweighted arithmetical average.) — ARTHUR YOUNG, *An Enquiry into the Progressive Value of Money in England as marked by the Price of Agricultural Products* (1812). (Introduces weighting into Evelyn's prices.) — IBID., *Inquiry into the Rise of Prices in Europe*. (First use of family budgets in weighting.) — JOSEPH LOWE, *The Present State of England in regard to Agriculture, Trade, and Finance* (1822), pp. 261–291. (First suggestion of tabular standard for debts; used weighting with arithmetical average.) — G. POULETT SCROPE, *Principles of Political Economy* (1833), pp. 405–408. (Emphasizes tabular standard of 100 articles weighted according to importance in consumption as measure of exchange-value of gold.) — THOMAS TOOKE, *Thoughts and Details on the High and Low Prices of the Thirty Years from 1793 to 1822* (1823). (Makes no use of index numbers, or systematic tables of prices.) — IBID., *History of Prices*, 1793–1856, 6 vols. (A valuable collection of materials, not reduced to index numbers.) — G. R. PORTER, *The Progress of the Nation* (1838) (ed. 1847), pp. 439–440, 444–445. (Takes prices of fifty articles in London, January, 1833, as "index-price," and reduces prices until December, 1837, to proportions of former.) — W. CROSS, *Standard Pound vs. Pound Sterling* (1856). (Proposes a change in the standard as often as the index number changes by 3 per cent.)

[1] Compiled with the help of Walsh's bibliography; but some of his titles are omitted, and others are added.

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des salaires, des denrées, et de tous les prix en général depuis l'an 1200 *jusqu'en l'an* 1800 (4 vols., 1894–1898), I, pp. 6–13, 27, 32, 137. (Uses weighting of importance in budgets of three classes, and arithmetic average of amounts of goods bought by given sum of silver.) — F. W. TAUSSIG, *Results of Recent Investigations on Prices in the United States*, Bulletin de l'Institut International de Statistique (1895), pp. 22–32, also in Yale Rev., Nov., 1893. (Concludes that weighted and unweighted index numbers have about same practical result.) — N. G. PIERSON, *Index Numbers and the Appreciation of Gold*, Econ. Jour. (Sept., 1895). (Accepts arithmetic average and favors list having largest number of articles.) — IBID., *Further Considerations on Index Numbers* (March, 1896). (Practically rejects whole system of index numbers.) — G. WIEBE, *Zur Geschichte der Preisrevolution des XVI und XVII Jahrhunderts* (1895). (Approves Lehr's method, and covers prices in Europe from 1451 to 1700.) — F. J. ATKINSON, *Silver Prices in India*, Jour. Roy. Stat. Soc. (March, 1897). (Using 1871 as base, he gives prices of 100 articles from 1861 to 1895, and weights the index numbers.) — R. MAYO-SMITH, *Statistics and Economics* (1899). (Reviews the problem, and generally favors the arithmetic average.) — R. S. PADAN, *Prices and Index Numbers*, Jour. Pol. Econ. (March, 1900). (Attacks Jevons's geometric average. Favors arithmetic average and weighting according to quantity sold. Defends index numbers against Pierson.) — A. L. BOWLEY, *Elements of Statistics* (1901). (A good modern discussion of averages, pp. 107–133, and of Index Numbers, pp. 217–233.) — C. A. WALSH, *The Measurement of General Exchange-Value* (1901). (Quite the most thorough and systematic discussion of the whole problem yet made. Favors geometric average and weighting. Examines critically all preceding literature with rigorous mathematical processes. Gives an exhaustive bibliography.) — T. S. ADAMS, *Index Numbers and the Standard of Value*, Jour. Pol. Econ. (Dec., 1901; March, 1902). (Asserts inadequacy of consumption and labor standards and of index numbers to measure value of money. Argues for one intermediate between consumers' and producers' standards.)

CHAPTER VII

HISTORY AND LITERATURE OF THE QUANTITY THEORY OF MONEY

The enigmatic phenomenon of money is even at this day without an explanation that satisfies; nor is there yet agreement on the most fundamental questions of its nature and functions. Even at this day we have no satisfactory theory of money. — KARL MENGER, *Econ. Journ.* (1892) p. 240.

The historical studies of this dogma are few: H. P. WILLIS, *History of the Quantity Theory*, Jour. Pol. Econ., Sept., 1896; W. A. SCOTT, *The Quantity Theory*, Annals of Amer. Acad., March 23, 1897; W. ROSCHER, *Political Economy*, I, § 101; R. ZUCKERKANDL, *Zur Theorie des Preises mit besonderer Berücksichtigung der Geschichtlichen Entwicklung der Lehre* (1889), mainly a history of theories of value.

§ 1. OUT of the ocean of literature on money — which is far beyond the power of any one man even to read — it may be possible to present the thinking of the most influential writers from the first beginnings about the sixteenth century (without hoping to name all those who are worthy of mention), and to draw the historical setting of the quantity theory in large outlines. A critical study of its validity is not possible until the theory has been followed from its origin into its later development.

Assuming the general results of scholarship in regard to mercantilism, it is evident that the importation of specie — which was mainly silver — from the New World created perturbations of a serious nature in the value of silver, and consequently in the prices of all goods, wages, and rents expressed in that standard. The belief that money and capital were nearly synonymous was widespread, and as a consequence, nations tried to encourage the inflow, and discourage the outflow, of specie. Out of the general beliefs thus current the idea that an increased quantity of money led to a higher level of prices was natural and

Metals from America raised prices.

just. Without doubt, an influence such as the opening of rich mines in America must have had a direct effect on lowering the exchange value of the existing stock of silver in Europe. The supply was so large compared with the previously collected stock that the world value was without doubt violently changed. Any operation by which the standard of prices should itself be lowered in value would bring about a rise of prices; and the proportion between the world's stock of a durable metal and its world supply was then nothing like what it is to-day after centuries of accumulation of the imperishable precious metals has gone on.

Bodin.

Jean Bodin[1] (1568) is thought to have been the first writer to ascribe the prevailing high prices to the new gold and silver from America. "W. S." (probably John Hales), in 1581, corroborated this view.[2] This was, however, by no means a statement of the quantity theory; it was a simple explanation of a rise of prices because of a fall in the value of the standard, quite irrespective of any comparison between the quantity of specie in circulation in the world (or even in any one country) and the amount of exchanging to be done. Then "W. S." made an observation[3] worth recording here: "Thoughe Gould and Silver be the Mettalles commonly whearin the coine is striken to be tokens in exchange of thinges betewne man and man, yet is it the wares that be necessarie for mans use that are exchanged in dede for the outward name of the coyne, and yt is the varietie and plentie therof that maketh the price therof base or higher."

"W. S."

[1] Réponse aux paradoxes de M. de Malestroit touchant l'enchérissement de toutes les choses et des monnaies (Paris, 1568). Cf. also, B. Davanzati, Lezione delle moneta (1588), who suggests Montesquieu's exposition that all goods are equal in value to all money.

[2] After finding that a restoration of the coinage removed the argument that high prices might have been due to a debasement of the standard coin.

[3] A Discourse of the Common Weal of this Realm of England. Ed. by Elizabeth Lamond, Cambridge, Eng., 1893. Its editor believes the book was written in 1549, although not published until 1581. P. 71.

Passing by Rice Vaughan,[1] the first definite enunciation of the modern quantity theory came not from a man of affairs, but from John Locke[2] (1691). He starts with an evidently false assumption that the value of money is imaginary:[3] Vaughan.

> "For mankind, having consented to put an imaginary value upon gold and silver, by reason of their durableness, scarcity, and not being very liable to be counterfeited; have made them, by general consent, the common pledges, whereby men are assured, in exchange for them, to receive equally valuable things, to those they parted with, for any quantity of these metals . . . they having, as money, no other value, but as pledges to procure what one wants, or desires; and they procuring what we want, or desire, only by their quantity, it is evident, that the intrinsic value of silver, and gold, used in commerce, is nothing but their quantity." [4]

After having in general determined the necessary "proportion of money to trade," and recognizing that it depends not merely on the quantity, but also on the rapidity of circulation,

[1] Rice Vaughan (1675) gave a somewhat systematic treatment of money, but he is filled with the mercantilist opinion that much money leads to luxurious living. After eliminating the effects of debasement, he ascribes the high prices then still evident to American silver. His book, it should be added, gives one of the earliest attempts to measure the average variation in prices. See *supra*, p. 171.

G. Montenari, Breve Trattato del valore delle Moneta in tutti gli Stati (1683), found that the price of an article was based on the quantity of money in circulation. Roscher (I, § 101) speaks of this as an excellent theory.

[2] Some Considerations of the Consequences of the Lowering of Interest, reprinted with McCulloch's Principles of Political Economy, in 1870. In this discussion Locke rambles over nearly the whole field of economics, touching upon such diverse topics as value, rent, the justification of interest, bimetallism, the balance of trade, the value of land, the incidence of taxation, and in an appendix "Of Raising our Coin." The treatment of money is only incidental.

[3] Cf. Bonar, Philosophy and Political Economy, p. 97. Exchange value would not exist without utility.

Even John Law could not conceive how different nations could have given an imaginary value to anything — least of all to money, in terms of which all their other goods are valued (Considérations sur le numéraire et le commerce, ed. Daire, pp. 467–471).

[4] P. 233.

he goes on to the central idea of his theory by pointing out that the demand for money does not vary, so that fluctuations in its value arise only from changes in supply:

"But, because the desire of money is constantly almost everywhere the same, its vent varies very little . . . the lessening its quantity, therefore, always increases its price, and makes an equal portion of it exchange for a greater of any other thing.[1]

Locke's quantity theory.

"But, everybody being ready to receive money without bounds, and keep it by him, because it answers all things: therefore the vent of money is always sufficient, or more than enough. This being so, its quantity alone is enough to regulate and determine its value, without considering any proportion between its quantity and vent, as in other commodities." [2]

That is, as "the price of any commodity rises or falls, by the proportion of the number of buyers and sellers" (p. 239), the value of money is a peculiar case of value — one in which its demand never varies. His position was untenable; his error arose at bottom from confusing money and loanable capital.[3] Men do not wish money itself, because just so long as it is held it earns nothing. Locke's confusion on this point is the result of his mercantilist belief that "Gold and silver, though they serve for few, yet they command all the conveniences of life, and therefore in a plenty of them consists riches."[4] The value of money being imaginary, but money being always in demand, and having its value determined solely by quantity, is not a very logical or serious statement; it borders on absurdity.[5] And yet he was

Locke's errors.

[1] P. 245. [2] P. 249.
[3] P. 223. [4] P. 226.
[5] "The idea that goods might be stated in terms of one another, and that when so stated they could be referred to money as a common denominator, seems entirely to have escaped Locke, and the cost of production of the money metal he consciously neglected. . . . The Quantity Theory then, as Locke stated it, assumed certain invariable elements. Granted that commodities are unaltered in amount or in conditions of production, that exchanges are constant in number, that the mechanism of exchange is the same in its general character, that population and the rapidity of circulation are essentially unchanged — prices will

not unaware of the effect of changes in methods of production on prices;[1] but even this cause, in his opinion, could have no result except through an actual offer for sale, thus changing the proportion between money and goods.

John Law[2] (1705), by confusing money with capital, exaggerated the work of money; by an increase of money the idle and poor are employed, more land is cultivated, and manufactures and trade are developed.[3] John Law.
To his mind it was money that gave employment to labor. Without directly ascribing the level of prices to the quantity of money, he took the far more extreme ground that everything depended on it:

> "Commerce and population, which make the wealth and power of a state, depend on the quantity and the regulation of money. . . . A state requires a certain quantity of money proportioned to the numbers of its people. . . . The balance of trade between states depends on the quantity and management of money" [meaning by money, capital, in this passage].
>
> "It is the great quantity of money and the low interest due to it that enables the Dutch to trade cheaper than other nations."[4]

Montesquieu[5] (1748) added his great authority to the quantity theory. A reminiscence of Locke is found in his defining money as "a token (signe) which represents the

depend upon the quantity of the money supply." H. P. Willis, History of the Quantity Theory, Jour. Pol. Econ., Sept., 1896, p. 419.

[1] "Money, whilst the same quantity of it is passing up and down the kingdom in trade, is really a standing measure of the falling and rising value of other things in reference to one another; and the alteration of price is truly in them only" (p. 298).

[2] "Considerations," etc., first appeared under the title "Money and Trade considered, with a proposal for supplying the Nation with Money," in Edinburgh in 1705 (London, 2d ed., 1720, and Somers' Tracts, London, 1809, pp. 775–817).

[3] Ed. Daire, p. 471.

[4] Mémoire sur les banques, pp. 549–550.

[5] "L'Esprit des lois" (references above given being to the Paris edition, 1893) was first published at Geneva in 1748. Book XXI treats of laws in their relation to the use of money.

value of all commodities."[1] All goods are compared with all money:

Montesquieu.

"An increase in the quantity of gold and silver is then advantageous when one regards the metals as articles of merchandise, but not when one regards them as tokens, because their value as tokens, being largely dependent on their scarcity, is decreased by abundance."[2]

"Money is the price of merchandise or commodities. How, then, are prices determined? That is, by what share of money is each thing represented?

"If one compares the amount of gold and silver in the world with the total of existing commodities, it is clear that each individual commodity may be compared with a certain part of the entire amount of gold and silver. As the total of the one is to the total of the other, so a part of the one will be to a part of the other. . . . But, since neither all property, nor the metals or money, which are the symbols of property, are always offered for sale, *prices are fixed by the ratio between the total of things and of tokens actually brought to market.* Since goods which are not on the market to-day may be there to-morrow, and the tokens which are not offered to-day may be to-morrow, prices are always ultimately determined by the ratio between the total amount of goods and of tokens.[3] . . .

"If, since the discovery of the Indies, gold and silver in Europe have increased in the ratio of one to twenty, prices of commodities must have risen in the ratio of one to twenty. But if, on the other hand, the amount of commodities has increased in the ratio of one to two, it must be that prices have on the one side risen in the ratio of one to twenty, and that, on the other, they have fallen in the ratio of one to two, so that they actually stand, in consequence, at the ratio of only one to ten."[4]

Berkeley.

Bishop Berkeley (1735) queries "whether, '*cæteris paribus*,' it be not true, that the prices of things increase, as the quantity of money increaseth, and are

[1] Chap. ii, p. 321.
[2] Chap. v, p. 324.
[3] Chap. vii, p. 325. The italics are mine.
[4] Chap. viii, p. 326.

diminished as that is diminished?"[1] But he does not go into proof.[2]

The mercantilist writers, who looked to an abundance of the precious metals as the measure of a country's richness, easily fell into a belief in the quantity theory. Although, even here, one must separate the statements showing a fall in the value of the metals due to an increase of the quantity coming from the New World from the statements, like those of Locke and Montesquieu, which ascribe changes of price to a changed proportion between the goods to be exchanged and the quantity of the metallic circulation. Men like Sir Matthew Decker[3] (1744) saw:

"That the Quantities of Gold and Silver brought to *Europe* since the Progress made by the *Spaniards* and *Portuguese* in *America* have made those Metals more common and of less Value than formerly, so that 20*s.* will hardly purchase what 1*s.* would before the Discovery of the *West Indies.*" Decker.

But he passes this point of view, and slides into the quantity theory, when he says:

"So that the present natural Price of Land, and its Produce, is the Proportion of Gold and Silver that Foreign Trade hath brought into, and left in the Nation: If the present Quantity was to be doubled by Foreign Trade, the natural price of Land, and its Produce, must be so too; . . . If our Foreign Trade decays until the present Money in the Nation be half swept away, the Produce of Land must sell for half the natural Price[4]

[1] The Querist, No. 465, p. 63.

[2] But, on the contrary, he asks: "Whether the value or price of things, be not a compound proportion, directly as the demand, and reciprocally as the plenty?" No. 24, p. 3.

[3] An Essay on the Causes of the Decline of the Foreign Trade, etc. (4th ed., Dublin, 1751), p. 71, and Part II, pp. 71–72.

[4] But, as a merchant, discussing prices from a practical point of view, he dropped his theory, and recognized the influence upon prices of the factors entering into expenses of production.

Speaking of a tax on coal, he says it must raise the wages of labor "and the Price of manufactured goods" (p. 12); also, he says: "Whatever raises the

it does now, and Land must let at half the Rent it naturally bears now."

The other writers of Decker's kind, Gee,[1] Child,[2] and the like, held similar views, adding nothing to the development of the theory.

David Hume[3] (1752) modified the quantity theory as expounded by Montesquieu, by confining it to the money in circulation and to the goods in the market.

Hume.

"It seems a maxim almost self-evident, that the prices of everything depend on the proportion between commodities and money, and that any considerable alteration on either has the same effect either of heightening or lowering the price. Encrease the commodities, they become cheaper; encrease the money, they rise in their value. As, on the other hand, a diminution of the former, and that of the latter, have contrary tendencies.

"It is also evident, that the prices do not so much depend on the absolute quantity of commodities and that of money, which are in a nation, as on that of the commodities, which come or may come to market, and of the money which circulates. If the coin be locked up in chests, it is the same thing with regard to prices, as if it were annihilated; if the commodities be hoarded in magazines and granaries, a like effect follows. As the money and commodities, in these cases, never meet, they cannot affect each other. . . . It is the proportion between the circulating money, and the commodities in the market, which determines the prices."[4]

Hume, therefore, gave the theory its modern form, even in its detailed application to the movement of exports and im-

Necessaries of Life, raises Labour, and of course the Price of every Thing that is produced by Labour" (p. 15; cf. pp. 92, 97, 160).

[1] Trade and Navigation of Great Britain (1729).

[2] Observations concerning Trade and Interest of Money (1688). A new Discourse on Trade (1690).

[3] Essays, Moral, Political, and Literary (Economic Essays first published in 1752). References are to the Edition of Essays by Green and Grosse, London, 1889, I.

[4] Pp. 316–318.

ports. He pointed out that when England's specie is drawn off, prices fall, exports increase, imports diminish, exchange turns in favor of England, and specie flows in; and *vice versa*. Moreover, he formulated the law of the distribution of the precious metals among nations (usually ascribed to Ricardo) in showing that the natural operations of trade "must for ever, in all neighbouring nations, preserve money nearly proportionable, to the art and industry of each nation." [1]

Joseph Harris [2] (1757) gave the best general discussion of money then published. On most of the fundamentals he is clear and consistent; but he displays the common disposition to theorize on prices, and yet abandon his theory in practical use. His exposition of the quantity theory is a careful development of previous writing on prices:

> "Money, exchanging universally for all commodities, the demand for it is without any limits; it is everywhere coveted, and never out of fashion: And therefore, on the one side, the whole quantity of money, cannot exceed the whole demand; and on the other side, the whole demand must not exceed, or it must rest satisfied with, the whole quantity. . . .
>
> "Therefore, as soon as money becomes properly diffused throughout any community; the value of the sum total of it in

[1] P. 333. His views on the effect of paper money on prices are worth quoting: Banks "render paper equivalent to money, circulate it throughout the whole state, make it supply the place of gold and silver, raise proportionably the price of labour and commodities, and by that means either banish a great part of those precious metals, or prevent their farther encrease" (p. 337).

He thought, too, that public securities, being a kind of paper credit, raised prices (p. 365).

High prices were, to Hume, an evil, because they made it possible for other nations to undersell England in foreign markets.

Finally, Hume gave an admirable account of how a rise of prices comes about, by steps moving from one article to another, until all have risen (pp. 313–314).

[2] An Essay upon Money and Coins. Part I. The Theories of Commerce, Money and Exchanges. London, 1757. . . . Part II, Wherein is Shewed That the Established Standard of Money should not be *violated or altered* under any pretence whatsoever. London, 1758.

He was penetrating enough to discard the balance of trade theory; but he applied the quantity theory to international trade (pp. 89–95).

circulation, will be equal to the whole quantity of commodities in traffic, in that country: For so much money and goods as lie dormant, or are out of currency and traffic, fall not within the present consideration. And so far as gold and silver, make the money of the world; so far, the whole quantity of these metals in circulation, may be said to be equal in value to all the commodities of the world, exchangeable by them: And as the total of the one, is to the total of the other; so will any given part of the one, be to a like part or proportion of the other.

"And hence, the value of a given quantity or sum of money, in any country, will be less or more, according as the sum total, or the whole quantity of money in currency, is greater or less, in proportion to the whole of the commodities of that country, exchangeable for money: Or, *the value of a given sum of money will be always, pretty exactly, in a reciprocal proportion to the sum total, or the whole quantity in circulation*; that is, the more money there is in currency, the less will be the value of a given sum in proportion to other things; and *vice versâ*. Hence again, it naturally follows, that, *if*, in any country, *the whole quantity of money in circulation, be either increased, or diminished; the value of a given sum will be accordingly lessened or increased; and that in proportion, as the said sum becomes thereby, a lesser or greater part, of the whole stock in currency.*" [1]

Joseph Harris.

Although he extended his view to the "money of the world," he ended by limiting his argument to the quantity of money in any one country as controlling prices there. In short, he reasoned that, as all goods exchanged were transferred by money as a medium of exchange, the price ratio between silver and goods was determined by the comparison of the sum total of goods with the total money in use as a medium of exchange, — without seeming to realize that the price appraisal between goods and money as a standard may possibly be determined before exchange takes place, and is influenced by many considerations affecting both money and goods. Therefore the actual quan-

Error of Harris's argument.

[1] Pp. 67–69.

tity of the medium offered in exchange for commodities must, of course, in any event, equal the value of the commodities as expressed in money: it is a statement of the results of the price appraisal, saying nothing as to the cause of prices. The difficulty of Harris's position is the same as that of some recent writers, who think that demand for goods is measured by the media of exchange actually used to transfer them.

But in practical questions Harris sees clearly (what is inconsistent with the strict quantity theory) that conditions affecting the production of goods influence their price:

> In discussing "why the prices of commodities, have not rose in proportion to the increase of money," he points out that there has been a great increase in the supply of goods as well as of money. "For, the improvements of arts, lessen the values or prices of particular commodities; and the improvements of husbandry, in particular, lessen the prices of corn and cattle." [1]

§ 2. The statement of the quantity theory received practically no dissent until Sir James Steuart[2] wrote (1767). It will have been noticed that in *obiter dicta* previous writers had referred to demand and supply of goods as regulating their prices, while they regarded the quantity theory, so to speak, as the official dogma. But Sir James Steuart flatly denied that prices were governed by the quantity of money in circulation, and directed all his argument to show that they depended upon: [3]

Sir James Steuart opposes the theory.

> "First, the abundance of the things to be valued; Secondly, the demand which mankind make for them; Thirdly, The Competition between the demanders; and, Fourthly, The Extent of the faculties of the demanders."

In stating that prices are regulated by the "relative proportion between commodities and the wants of mankind"

[1] P. 78.

[2] An Inquiry into the Principles of Political Economy (1767), 2 vols. The references are to Works (1805), I–IV.

[3] II, pp. 271–272.

he practically referred the question to the general relation between the supply of goods and the demand for them; and he does not make clear what he means by demand in this connection:

> "As far therefore, as an increase of the metals and coins shall produce an increase of demand, and a greater competition than before, so far will this circumstance influence the rise of prices, and no farther." [1]

He saw, also, that "gold and silver are commodities merely like every other thing." [2]

In short, he believed the prevailing theory of prices to be wrong, but he was unable to give much more than a hazy guess at a sound theory:

> "It is impossible to lay down a distinct theory for the rise and fall of the prices of all sorts of commodities in a nation such as Great Britain. All that can be said with certainty, is, that competition on the part of the consumers will make them rise, and that competition on the part of the furnishers will make them fall." [3]

His progress was sensible; but while the older writers pivoted the theory of prices on a demand for goods defined by the quantity of money in circulation, Steuart regarded prices as practically regulated by a demand on the part of consumers. This advance was not great, but he clearly directed thinking into a new channel [4] by insisting that gold and silver were

[1] II, p. 273. [2] III, p. 2. [3] III, p. 15.

[4] Arthur Young's defence of the quantity theory, Political Arithmetic (1774), against Steuart was exceedingly lame, because he regarded money as synonymous with income, and so with demand:

> "I never understood either M. de *Montesquieu* or Mr. *Hume* to assert or mean, that very great variations would not be frequent, independently of the quantity of money. . . . All such variations are perfectly consistent with the idea that the price of commodities will depend on the quantity of specie; because this idea is not relative to certain days, weeks, months, or markets, but to general periods in which money has increased or decreased; . . . one 50 years with another 50," etc. (pp. 113-114).
>
> "Let us take Sir *James's* supposition; suppose our national wealth to be increased to ten times the present amount. . . . Thus every man possessing

commodities like any other, and that influences acting on the commodity side of the price ratio were of decisive importance.

It is to Adam Smith that we are indebted for a broader and more illuminating discussion of prices than any furnished by previous writers. The principles he worked out underlying the value of goods, helped him in ascertaining the relative values of money and goods, that is, prices. He discarded altogether the limited view which regarded prices as regulated by a demand for goods which was expressed by the quantity of money in circulation. On the contrary, he elaborated a view of price which depended on the various elements entering into cost of production. Labor being shown to be the primary cause of value, he found that the value of any article of merchandise, as well as gold and silver, was governed by its cost of production (measured by the quantity of labor it could command). If the precious metals could be obtained by a diminished quantity of labor, they would exchange for less of other goods, and *vice versa*. Hence prices might change for reasons affecting the quantity of labor required in the production of the precious metals, as well as of any other articles. Anything which affected the marginal expenses of production at the mines would, in the end, affect the values of the precious metals, and thus prices:

Adam Smith.

> "Gold and Silver, like every other commodity, vary in their value; . . . are sometimes cheaper and sometimes dearer, sometimes of easier and sometimes of more difficult purchase.

ten times his present wealth and income, immediately increases his expences. . . . All this forms a fresh demand for every article; and as the wealth of others has the same effect with them, here is competition; if prices in consequence of this demand and competition should not rise, surely it would be miraculous" (pp. 117–118).

Young refers to the point raised by Steuart touching an increased demand for Manchester goods at unchanged expenses of production, and admits that it is a strong objection; but he cavalierly dismisses it as unimportant (pp. 118–120).

John Wheatley (Remarks on Currency and Commerce, London, 1803), replied to Steuart's attack on the quantity theory: "Demand is always regulated by the general ability to pay, and not by the desire to have. . . . The price of produce therefore, must ever be regulated by the quantity of money in circulation for its purchase, and its own quantity at the time to answer the demand" (p. 35).

> The quantity of labour which any particular quantity of them can purchase or command, or the quantity of other goods which it will exchange for, depends always upon the fertility or barrenness of the mines which happen to be known about the time when such exchanges are made. The discovery of the abundant mines of America reduced, in the sixteenth century, the value of gold and silver in Europe to about a third of what it had been before. As it cost less labour to bring those metals from the mine to the market, so, when they were brought thither, they could purchase or command less labour." [1]

Adam Smith on paper money.

In his treatment of metallic and paper money Smith[2] explained that an addition of convertible paper would not raise prices, because it would drive out an equal quantity of coin; and the exchange of goods which had been formerly performed solely by coin, would now be effected by the same quantity of a mixed circulation of paper and coin. Any addition of coin or convertible paper, beyond the amount already indicated as needed by the community, would overflow; the paper could not go abroad; the surplus coin, being too valuable to lie idle, would be exported. Thus changes of this sort, which did not change the value of the metal used in the coin, would not affect prices. This is an immense progress beyond previous writers; and he neatly gave the *coup de grâce* to Hume in the following characteristic passage, combining reasoning and fact:

> "The increase of paper money, it has been said, by augmenting the quantity, and consequently diminishing the value of the whole currency, necessarily augments the money price of commodities. But as the quantity of gold and silver which is taken from the currency, is always equal to the quantity of paper which is added to it, paper money does not necessarily increase the quantity of the whole currency. From the beginning of the last century to the present time, provisions never were cheaper in Scotland than in 1759, though, from the circulation of ten and five shilling bank notes, there was then more

[1] Wealth of Nations (McCulloch's ed.) p. 14 (Book I, chap. v).

[2] *Ibid.*, Book II, chap. ii, p. 127.

paper money in the country than at present. The proportion between the price of provisions in Scotland and that in England, is the same now as before the great multiplication of banking companies in Scotland. Corn is, upon most occasions, fully as cheap in England as in France; though there is a great deal of paper money in England, and scarce any in France. In 1751 and in 1752, when Mr. Hume[1] published his Political Discourses, and soon after the great multiplication of paper money in Scotland, there was a very sensible rise in the price of provisions, owing, probably, to the badness of the seasons, and not to the multiplication of paper money."[2]

The greatness of Adam Smith is seen not only in his penetrating treatment of the fallacies underlying mercantilism, and its confusion of money and wealth, but also in his outline for coming time of the essential elements of the price question, resting on a consideration of the comparative values of goods and money, and not on a comparison of goods with the amount of the media of exchange (or circulation). Making due allowance for the meagre expression, "quantity of labour," a return to the following analysis[3] of Smith, unmistakably gives the direction in which we may look for the solution of the price problem:

"A paper currency which falls below the value of gold and silver coin, does not thereby sink the value of those metals, or occasion equal quantities of them to exchange for a smaller quantity of goods of any other kind. The proportion between the value of gold and silver and that of goods of any other kind, depends in all cases, not upon the nature or quantity of any particular paper money

Adam Smith suggests the true theory of price.

[1] Cf. Hume's statement, *ante*, p. 233, note 1.

[2] Smith also hit the centre of the target in mentioning paper. A reduction in the value of the standard he saw would lead to a rise of prices, irrespective of the quantity in circulation. "Such a paper money would, no doubt, fall more or less below the value of gold and silver, according as the difficulty or uncertainty of obtaining immediate payment was supposed to be greater or less; or according to the greater or less distance of time at which payment was exigible" (p. 143). Cf. *infra*, chap. xv, § 7.

[3] *Ibid.*, p. 145.

> which may be current in any particular country, but upon the richness or poverty of the mines, which happen at any particular time to supply the great market of the commercial world with those metals. It depends upon the proportion between the quantity of labour which is necessary in order to bring a certain quantity of gold and silver to market, and that which is necessary in order to bring thither a certain quantity of any other sort of goods."

He escaped the pitfall of assigning the determination of prices to a vague idea of general demand, or purchasing power, be it measured by the quantity of money in circulation (*i. e.*, by the media of exchange) or by the circulation together with credit, as often put by later writers.

§ 3. Without drawing too strict a line between what is historical and what is modern, it may be well to regard the writers from (and including) Ricardo, as furnishing the statement according to which the modern quantity theory must stand or fall. Very recent writers, like General Walker, recur to Ricardo as giving the best present formulation of the doctrine. It shall be our next object, then, to obtain as exact a statement as possible of the economic processes by which prices are thought to be regulated according to the generally accepted quantity theory of the present day.

Two theories of price by Ricardo.

While Ricardo undoubtedly formulated this theory, he disclosed alongside it, in his general discussion, so many evidences of a very different conception of price that it is not easy for him to escape the charge of inconsistency. The explanation, however, is probably to be found in his making no real distinction between money as a common denominator (or standard) and as a medium of exchange. As between goods and a metallic coinage he found a fairly just theory of price; but when he discussed the value of depreciated paper money he applied a rigid quantity theory, — with, however, many an insight into other and truer principles. First, following Ricardo's fundamental views on value, we shall find in them the basis

of a view of price, which stands out in clear contrast to his quantity theory.

(A) The precious metals, he points out in a passage quoted from Adam Smith, are primarily valuable for their intrinsic qualities, and conditions of production:

> "'The quality of utility, beauty, and scarcity,' says Dr. Smith, 'are the original foundation of the high price of those metals, or of the great quantity of other goods for which they can everywhere be exchanged.'"[1]

There is thus no difference between the precious metals in which prices are expressed and other commodities as regards the causes which determine their respective values, for he says:

> "Gold and silver, like all other commodities, are valuable only in proportion to the quantity of labour necessary to produce them and bring them to market."[2]
>
> "If I found . . . a given quantity of gold could be obtained with a less quantity of labour, I should be justified in saying that the cause of the alteration in *the value of gold relatively to other commodities*, was the greater facility of its production, or the smaller quantity of labour necessary to obtain it."[3]

If, then, there can be a change "in the value of gold relatively to other commodities," that is exactly the same thing as a change of prices of those goods, and it has been caused by an alteration in the cost of acquisition of the common denominator. Here we have an admission that prices can be influenced without regard to a variation in the quantity of the media of exchange, and arising directly from a change in the value of the standard. Ricardo even points out in detail how gold and silver are subject to fluctuations because of discoveries and improvements, or by decreasing production from the mines.[4]

How gold and silver affect price.

[1] Works, McCulloch's ed. (London, 1888), p. 263.

[2] *Ibid.*, p. 213.

[3] *Ibid.*, p. 13. The italics are mine.

[4] "Gold and silver are no doubt subject to fluctuations, from the discovery of new and more abundant mines; but such discoveries are rare, and their effects,

Since price arises from comparing the values of goods with the value of the standard, we may now seek to find in Ricardo's words how prices may be influenced by changes on the goods side of the price ratio:

"Some commodities are rising in value, from the effects of taxation, from the scarcity of the raw material of which they are made, or from any other cause which increases the difficulty of production. Others again are falling, from improvements in machinery, from the better division of labour, and the improved skill of the workman; from the greater abundance of the raw material, and generally from greater facility of production." [1]

How changes on goods side affect price.

The fundamental forces affecting prices, both on the side of the common denominator and on the side of goods, are thus fairly stated. But he goes farther than this, and seems to clinch this theory of prices by the following passages:

"It is the cost of production which must ultimately regulate the price of commodities. . . .

"The opinion that the price of commodities depends solely on the proportion of supply to demand, or demand to supply, has become almost an axiom in political economy, and has been the source of much error in that science. . . .

"The demand for a commodity cannot be said to increase, if no additional quantity of it be purchased or consumed; and yet, under such circumstances, its money value may rise. Thus, if the value of money were to fall, the price of every commodity would rise. . . . Its natural price, its money cost of production would be really altered by the altered value of money; and without any increase of demand, the price of the commodity would be naturally adjusted to that new value." [2]

Error in appealing to demand and supply according to Ricardo.

though powerful, are limited to periods of comparatively short duration. They are subject also to fluctuations, from improvements in the skill and machinery with which the mines may be worked; as in consequence of such improvements, a greater quantity may be obtained with the same labour. They are further subject to fluctuation from the decreasing produce of the mines, after they have yielded a supply to the world, for a succession of ages." Works, p. 11.

[1] *Ibid.*, pp. 400–401. [2] *Ibid.*, p. 232.

That is, while some writers[1] insist that the quantity theory is only an application of the general principle of demand and supply (and, therefore, incapable of disproof by inductive verification), Ricardo is here urging that demand and supply cannot alone regulate price. Indeed, as above quoted, he remarks that this point of view is productive of "much error." This indictment ought to cover that theory which makes price the outcome of a comparison between the supply of money in circulation (including, of course, rapidity of circulation) and the money work, which is the supposed demand for money.

Price question not involved in discussion of value.

It does not seem necessary to enter into any discussion of Ricardo's theory of value as dependent on "cost of production" to see the working of the theory of prices. Whatever be the causes of value — whether according to the subjective or mechanical theories of value, as applied to the metals on one side, and to goods on the other side, of the comparison, — it must be clear that the changes in exchange value on either side of the price ratio produce changes in the price comparison. Hence those who deny Ricardo's theory of value (as dependent on cost of production) should not be unable to see that causes, other than the quantity of money, affect the exchange value of the precious metals as compared with gold.

Indeed, Ricardo so nearly reached a modern explanation of price, which required no reference at all to the quantity theory, that one is set to marvel. He quoted[2] approvingly, with one correction, the Earl of Lauderdale's summary[3] of the principles regulating price which is amazingly near the truth. If the value of an article be regarded as fixed and intrinsic, the latter thought it would vary according to:

1. A diminution of its quantity.
2. An increase of its quantity.

[1] *E.g.*, F. A. Walker, Quar. Jour. Econ., July, 1895; cf. also his Political Economy, § 199, p. 148.

[2] Works, pp. 233–234.

[3] An Inquiry into the Nature and Origin of Public Wealth, p. 13.

3. An increase of its demand.
4. A failure of demand.

"'As it will, however, clearly appear that no commodity can possess fixed and intrinsic value, so as to qualify it for a measure of the value of other commodities, mankind are induced to select, as a practical measure of value, that which appears the least liable to any of these four sources of variations, *which are the sole causes of alteration of value.*

Ricardo approves Lauderdale's analysis of price.

"'When, in common language, therefore, we express the *value* of any commodity, it may vary at one period from what it is at another, in consequence of eight differ encontingencies:

1. "'From the four circumstances above stated in relation to the commodity of which we mean to express the value.

2. "'From the same four circumstances, in relation to the commodity we have adopted as a measure of value.'"

Ricardo accepted this, by amending 2 (above the quotation) to mean lowered cost, not merely change of quantity: "The prices of commodities which are subject to competition, and whose quantity may be increased in any moderate degree, will ultimately depend, not on the state of demand and supply, but on the increased or diminished cost of their production."[1]

However, nothing could be more penetrating as to a theory of price, quite independent of the quantity of the circulation, than this conclusive sentence:

"In stating the principles which regulate exchangeable value and price, we should carefully distinguish between those variations which belong to the commodity itself, and those which are occasioned by a variation in the medium [*i. e.*, the standard] in which the value is estimated, or price expressed."[2]

If, with General Walker,[3] we should "follow Mr. Ricardo without deviation, believing that he was the economist who

[1] Works, p. 234.
[2] *Ibid.*, p. 31.
[3] Political Economy (adv. course), § 197.

most fully and justly apprehended the relations of money to price; and that departure from the principles laid down by the great thinker leads to confusion, misconceptions, and needless controversy," we might stop here without asking for any further grounds upon which to construct a theory of prices having no reference whatever to the quantity of the circulation.[1]

Correct theory of price irrespective of quantity theory.

(B) That Ricardo, however, did state an unqualified quantity theory, there can be no doubt, even if it should prove to be inconsistent with his previous reasoning. Out of his philosophy of the seigniorage, he developed this view:

"While the State coins money, and charges no seignorage, money will be of the same value as any other piece of the same metal of equal weight and fineness; but if the State charges a seignorage for coinage, the coined piece of money will generally exceed the value of the uncoined piece of metal by the whole seignorage charged, because it will require a greater quantity of labour, or, which is the same thing, the value of the produce of a greater quantity of labour, to procure it.

Quantity theory in seigniorage.

"While the State alone coins, there can be no limit to this charge of seignorage; for by limiting the quantity of coin, it can be raised to any conceivable value.

"It is on this principle that paper money circulates: the whole charge for paper money may be considered as seignorage. Though it has no intrinsic value, yet, by limiting its quantity, its value in exchange is as great as an equal denomination of coin, or of bullion in that coin. On the same principle, too, namely, by a limitation of its quantity, a debased coin would circulate at the value it should bear, if it were of the legal weight and fineness, and not at the value of the quantity of metal which it actually contained.[2]

"There can exist no depreciation of money but from excess.

[1] In the last quotation observe Ricardo's use of "medium," where he necessarily intended standard. The failure to make this distinction throughout his reasoning has much to do with the theory that prices depend mainly on the quantity of the media of exchange in circulation.

[2] Works, pp. 213–214.

However debased a coinage may become, it will preserve its Mint value, that is to say, it will pass in circulation for the intrinsic value of the bullion which it ought to contain, provided it be not in too great abundance.[1]

"Surely by a diminution of the quantity of the currency, the whole that remains can be elevated to the value of the best pieces.[2]

"The silver currency was [previous to 1797] very much debased; but it existed in a degree of scarcity, and therefore, on the principle which I have before explained, it never sunk in its current value."[3]

Utility of money as a medium of exchange.

Ricardo seems to have been convinced of an imperative demand for coins, or money, as a medium of exchange, to be used in effecting the necessary transfer of goods, in which actual money was passed from hand to hand; that this money must be in value, of course, equal to the goods for which it was exchanged. Granting this imperative demand, the value of the money varied exactly in proportion to its quantity in use (including, also, rapidity of circulation). The theory was thus a statement of demand and supply; demand being the money work, and supply being the amount of money (coin, or paper, media of exchange) in circulation. The doctrine, however, is open to serious criticism for emphasizing only the utility of money, as a medium of exchange, as well as for the omission to include other factors (on the side of goods) affecting price; and, also, because he disregards the other factors directly affecting the value of the particular commodity chosen as the standard. As Ricardo has elsewhere shown,[4] the value of the gold could be influenced by any causes affecting its "cost of production;" and prices of goods expressed in gold could be likewise affected by changes in the "cost of production" either of goods or of gold.

That is, by this set of Ricardo's statements, the value of the money used in exchanging goods is not dependent on

[1] Works, p. 347. [2] *Ibid.*, p. 215. [3] *Ibid.*, p. 223
[4] *Supra*, p. 244. Ricardo, Works, p. 31.

anything which might affect the value of the material out of which it is made. By his supposition, only the state supplies the money, and there is no free coinage. So that the forces, in this case, governing its value, are entirely detached from those touching the material of which the coins may be composed. Therefore, under a modern system of free coinage, by which the value of coins is made to depend (often with gratuitous coinage) on the value of the bullion, the state could not monopolize the coinage, or fix its quantity; hence the level of prices would not, when expressed in such a standard, be regulated by the quantity of the coin in circulation. In fact, the value of the coin, being conformable to the metal, would vary with any causes affecting the value of that metal. In short, Ricardo's quantity theory expressed chiefly in regard to paper (although also including coin) would not be true, if the quantity of the circulation were not monopolized by the state; that is, it would not be true where free coinage of a metal existed, or where the paper circulation were supplied by an elastic system of private bank issues.

The theory untenable, if free coinage exists.

Ricardo's quantity theory is, then, true only if we have the conditions on which it is based: (1) no free coinage, but a monopoly of issues by the state; and (2) the actual passage of that particular kind of money in all exchanges of goods (so far as money work is regarded). In modern times the general existence of free coinage among commercial nations requires us to abandon the quantity theory, so far as to deny that prices are regulated by the quantity of coin in circulation — the value of the coin rather being regulated by the general causes governing the value of gold and silver bullion. Since prices expressed in coin cannot be explained by this theory of Ricardo, and since convertible paper must have the same value as the coin by which it is redeemed, we are finally led to suppose that the quantity theory can logically be applied only to inconvertible paper, of whose quantity the state has absolute control, or to token (or debased) coins issued only by, and at the expense of,

False assumptions of quantity theory.

the state (there being no free coinage). And even then we are obliged to remember the supposition that, in the face of exchanges to be made, money must be passed at each transaction, and that, without money, no exchanging could take place. Only in this way do we comprehend the imperative necessity of a demand for money of some kind, so urgent that its absence will practically cause a cessation of production, or a resort to barter.[1] If, however, even inconvertible paper money is not in fact used in every exchange of goods (some exchanges being performed, *e. g.*, by a deposit currency) to Ricardo's followers that only means that there is less money work, or demand for money; and that the level of prices is nevertheless obtained by a comparison of the existing supply of money in circulation with those exchanges (be they large or small) which still require the actual passage of money in every transaction. Hence we find Ricardo expressing his quantity theory most strongly in its connection with inconvertible paper (or debased coinage):

Quantity theory applied to inconvertible paper.

"It will be seen that it is not necessary that paper money should be payable in specie to secure its value; it is only necessary that its quantity should be regulated according to the value of the metal which is declared to be the standard.[2]

"It is evident, then, that a depreciation of the circulating medium is the necessary consequence of its redundance.[3]

"A bank note is of no more intrinsic value than the piece of paper on which it is made. It may be considered as a piece of money on which the seignorage is enormous, amounting to all its value. . . . Whilst such money is kept within certain limits, any value may be given to it as currency. . . . The value of such money must depend wholly upon its quantity.[4]

"If the Bank were restricted from paying their notes in specie, and all the coin had been exported, any excess of their notes would depreciate the value of the circulating medium in proportion to the excess. If 20 millions had been the circulation

[1] Cf. F. A. Walker, Political Economy (adv. course), § 201, pp. 149–150.
[2] Works, p. 214. [3] *Ibid.*, p. 270. [4] *Ibid*, pp. 345–346.

of England before the restriction, and 4 millions were added to it, the 24 millions would be of no more value than the 20 were before, provided commodities had remained the same, and there had been no corresponding exportation of coins; and if the Bank were successively to increase it to 50 or 100 millions, the increased quantity would all be absorbed in the circulation of England, but would be, in all cases, depreciated to the value of the 20 millions.[1]

"If a mine of gold were discovered, . . . the currency of that country would be lowered in value in consequence of the increased quantity of the precious metals brought into circulation. . . .

"If, instead of a mine being discovered in any country, a bank were established, such as the Bank of England, with the power of issuing its notes for a circulating medium; after a large amount had been issued, either by way of loan to merchants, or by advances to Government, thereby adding considerably to the sum of the currency, the same effect would follow as in the case of the mine. The circulating medium would be lowered in value, and goods would experience a proportionate rise." [2]

"When the circulation consists wholly of paper, any increase in its quantity will raise the *money* price of bullion, without lowering its *value*, in the same manner, and in the same proportion, as it will raise the prices of other commodities." [3] . . .

"The issuers of paper money should regulate their issues solely by the price of bullion, and never by the quantity of their paper in circulation. The quantity can never be too great nor too little while it preserves the same value as the standard." [4]

Quantity, not redemption, regulates value of paper, according to Ricardo.

If a demand satisfiable only by money be presupposed, and if the state alone be permitted to supply the medium to meet that demand (*e. g.*, as in fractional coinage), Ricardo would hold that inconvertible paper, or a debased coinage, could be kept at par (with, *e. g.*, gold), simply by regulation of its quantity, and without a system of redemption. This is the gist of Ricardo's quantity theory. And yet the necessity of the process

[1] Works, p. 285. [2] *Ibid.*, p. 264. [3] *Ibid.*, p. 270, note. [4] *Ibid.*, p. 403.

of redemption to the value of the paper (that is, *immediate* redemption on demand, as distinguished from *ultimate* redemption in the future, which latter is associated with the solvency of the issuer), is practically admitted by the following passages from Ricardo:

> "And if an ounce of standard gold in guineas would sell in the market, as standard bars do now, at 4*l.* 10*s.* per oz., or, as they have lately done, at 4*l.* 13*s.* per oz., what shopkeeper would sell his goods at the same price either for gold or bank notes indifferently? If the price of a coat were 3*l.* 17*s.* 10½*d.*, or an ounce of gold [coin], and if at the same time an ounce of gold would sell for 4*l.* 13*s.*, is it conceivable that it would be a matter of indifference to the tailor whether he were paid in gold or in bank notes?" [1]
>
> "The same check which compelled the Bank of England to withdraw part of their notes from circulation when they used to pay them on demand in specie, would oblige the country banks to adopt the same course." [2]
>
> "If, whilst the Bank paid their notes on demand in specie, they were to increase their quantity, they would produce little permanent effect on the value of the currency." [3]

Moreover, the theory that paper money can have a seigniorage of one hundred per cent is indefensible. The lowest limit of its value cannot be found by considering the cost of the paper and printing. Its value, if it ever has any, is the value of the promise to pay, or (as in the case of inconvertible paper) the value sometimes imparted to it by the association of custom or name, such as the blind attribute of value to anything called a dollar or a pound. Its seigniorage is the difference between its face value and the value given it by the estimate of the community as to the chances of its being redeemed in the thing it promises to pay.

Seigniorage of paper money.

§ 4. The suspension of specie payments, or the Restriction from paying specie, as it was technically known, by the

[1] Works, p. 280. [2] *Ibid.*, p. 283. [3] *Ibid.*, p. 285.

Bank of England in 1797 gave rise to a celebrated discussion on money, one which brought forth a vast literature, ending not even with the Bank Act of 1844.

From 1795 to 1801 many goods were very high in price, but the greatest rise of prices took place about the end of the first half of 1809.[1] Both Tooke and Senior agreed that there was no depreciation of the bank notes until 1808. In 1810 prices were falling heavily, as contrasted with 1808 and 1809.[2] From 1808 to 1811 there was a riot of speculation and disturbance in the markets.[3] Of course, the large shipments of specie to the continent for the war chest, and the heavy importations of breadstuffs, at different times affected the rate of foreign exchange. Moreover, the decrees of Napoleon,[4] the Orders in Council,[5] and the American Embargo,[6] added to the complexity of the forces affecting prices.

Bank of England Restriction, 1797–1821.

On December 1, 1809, appeared Ricardo's *High Price of Bullion a Proof of the Depreciation of Bank Notes;* and June 8, 1810, that most celebrated of all reports on money, *The Bullion Report* (prepared by Messrs. Horner, Thornton, and Huskisson). The date later fixed by Parliament for resumption of specie payments, July 5, 1818, was postponed, and a result of an inquiry by a Committee led to the Act of 1819, under which (before the final date of May 1, 1823, set by the Act) specie payments were resumed at the Bank's own instance on May 1, 1821. Thus the Restriction Period, or the inconvertibility of the notes, continued from 1797 to 1821.

Bullion Report.

Henry Thornton's *Enquiry into the Nature and Effects of the Paper Credit of Great Britain* (1802) shows a remarkable grasp of the operations of banking, credit, and paper money — not the necessary consequence of

Thornton.

[1] Tooke, History of Prices, IV, p. 93.

[2] *Ibid.*, p. 110; although the Bullion Report said prices were arising.

[3] *Ibid.*, p. 126.

[4] Berlin Decree, Nov. 21, 1806; Milan Decree, Dec. 17, 1807.

[5] Mainly Nov. 11 and 21, 1807. [6] Dec. 22, 1807.

being an important merchant and a director of the Bank of England. Although his views on the theory of prices are not always consistent, they belong to the general conceptions associated with Ricardo:

"The price of commodities in the market is formed by means of a certain struggle which takes place between the buyers and the sellers.[1]

"The principle which has been laid down as governing the price of goods, must be considered as also regulating that of the paper for which they are sold. . . . The price at which the exchange (or sale) takes place depends on two facts: on the proportion between the supply of the particular commodity and the demand for it, which is one question; and on the proportion, also, between the state of the general supply of the circulating medium and that of the demand for it, which is another."[2]

True insight into price question.

This declaration does not jump well with the quantity theory; indeed he seems to see nothing in it, as the following passage indicates:

"I believe the fact to be, that very little correspondence has subsisted between the fluctuations in the amount of Bank of England notes in circulation at different times, and the variations in the general price of articles."[3]

The world value of gold, moreover, is clearly seen as that to which prices in any country must sooner or later conform:

"The general and permanent value of bank notes must be the same as the general and permanent value of that gold for which they are exchangeable, and the value of gold in England is regulated by the general and permanent value of it all over the world; and, therefore, although it is admitted that a great and sudden reduction of bank notes may produce a great local and temporary fall in the price of articles (a fall, that is to say,

[1] P. 193. [2] P. 194.

[3] P. 240. This coincides with the facts in the "American Experience with Paper Money" (1862–1879). Cf. S. M. Hardy, The Quantity of Money and Prices, Jour. Pol. Econ., March, 1895.

even in their gold price, for we are here supposing gold and paper to be interchanged), the gold price must, in a short time, find its level with the gold price over the rest of the world." [1]

The writer, in short, seems to see that price is a comparison between goods and the standard metal; and that the value of the standard is determined not merely by forces working within one country, but by all those in operation throughout the world. Moreover, forces affecting prices through commodities themselves are incidentally admitted:

"That the Bullion price of some British articles has lately been much increased, and that the Bullion price of all, or of almost all, has in some degree risen, are facts which cannot be doubted. But that this enhancement is to be charged to an encrease of paper, is not equally to be admitted; for it is plain that other causes have powerfully operated, namely, a state of war, new taxes, and two bad harvests, which, by raising the price of bread, have in some degree lifted up that of labour, and of all commodities." [2]

And yet, in spite of so much clear thinking, Mr. Thornton felt the general tilt of the period towards a belief in the quantity theory:

"But for all that there is no reason to doubt the truth of the general principle that an increase of bank issues tends to enhance prices and vice versa.[3]

"A too great amount of notes put into circulation would raise prices, check exports, stimulate imports, produce an unfavorable balance of trade and drain off the country's stock of gold." [4]

By all odds the most notable monetary document of the time was the famous *Report from the Select Committee of the*

[1] Jour. Pol Econ., March, 1895, note, pp. 82–83.

[2] *Ibid.*, p. 301.

[3] *Ibid.*, p. 242.

[4] *Ibid.*, pp. 278–295. If there had been a depreciation of the standard in which prices were expressed, and if the increase of the bank notes had been a consequence of this depreciation, then Mr. Thornton was not following the quantity theory. And, also, one of several factors influencing price would be the quantity (or supply) of the standard commodity, as distinct from the quantity of the media of exchange.

House of Commons on the High Price of Gold Bullion (June 8, 1810), commonly called *The Bullion Report*.[1] Although its chief purpose was to bring about the resumption of specie payments, yet as to the principles on which the process was to be carried out, the Report in the main expressed the doctrines of Ricardo (see *supra*, § 3), and its views were adopted by the Select Committee on Resumption in 1819.

Bullion Report followed Ricardo largely.

The main recommendation was, of course, "the restoration of the Currency of the country to a state of regulation by its ancient metallic standard." At times gold had borne a premium of 10 per cent, and silver of from 10 to 15 per cent. The depreciation of the paper showed itself in the smaller quantity of foreign gold that it would buy in the foreign exchanges; the fall in exchange was, then, the form in which the depreciation of the bank notes attracted most attention. The amount of depreciation was estimated by the course of foreign exchange, since that gave a comparison between the value of the paper and that of gold. Hence it was concluded by the Report that:

Depreciation shown by foreign exchange.

> "The price of Gold Bullion and the general Course of Exchange with Foreign Countries, taken for any considerable period of time, form the best general criterion from which any inference can be drawn, as to the sufficiency or excess of paper currency in circulation."[2]

It was believed by the authors of the Report that an excess of paper caused the depreciation of the notes, and that this excess was the reason for higher paper prices of goods within the country:

> "An increase in the quantity of the local currency of a particular country, will raise prices in that country exactly in the

[1] See "Select Collection of Scarce and Valuable Tracts, etc., on Currency and Banking," by J. R. McCulloch, pp. 403–474. The Bullion Report was also reprinted in W. G. Summer's "History of American Currency," pp. 335–391.

[2] P. 447. Of course, Malthus was quite right in holding that the course of exchange would be affected by the relation of exports and imports of goods, and not solely by the depreciation of the paper. Cf. Tooke, IV, p. 101.

same manner as an increase in the general supply of precious metals raises prices all over the world. By means of the increase of quantity, the value of a given portion of that circulating medium, in exchange for other commodities, is lowered. . . . In this manner, an excess of the local currency of a particular country will occasion a rise of the market price of gold above its Mint price. It is no less evident, that, in the event of the prices of commodities being raised in one country by an augmentation of its circulating medium, while no similar augmentation in the circulating medium of a neighboring country has led to a similar rise in prices, the currencies of those two countries will no longer continue to bear the same relative value to each other as before. . . . The exchange will be computed between these two countries to the disadvantage of the former.

Qualified quantity theory in Bullion Report.

"In this manner, a general rise of all prices, a rise in the market price of Gold, and a fall of the Foreign Exchanges, will be the effect of an excessive quantity of circulating medium in a country which has adopted a currency not exportable to other countries, or not convertible at will into Coin which is exportable."[1]

On their side, the directors of the Bank of England held that there could be no excess in notes, if the issues arose from discounts for short periods based on actual transactions.[2] Their error existed in not realizing the necessity of testing the solvency of the deposit currency in coin itself on demand. Assuming a system of immediate redemption, then, if notes were outstanding in excess of the needs of the community for a medium of exchange, it was inevitable that they must come in to be redeemed. Such a system would automatically test how much the country needed; because no more than that could possibly be kept out. If the notes were immediately convertible, discounts could not be increased "so as thereby

Opinion of Bank directors.

[1] Pp. 418–419. The Report wrongly assigns the depreciation of the notes of the Scotch banks to an excess of issues, when it was really due to an interference with their immediate convertibility. Cf. p. 439.

[2] P. 448.

to produce an excess of their paper in circulation, without quickly finding that the surplus returned upon themselves in demand for specie."[1]

In conclusion, the Report declared:

> "Your Committee are of opinion, that no safe, certain, and constantly adequate provision against an excess of paper currency, either occasional or permanent, can be found, except in the convertibility of all such paper into specie."[2]

That is, while admitting the evident force of convertibility, the Bullion Report, so far as it entered into the general theory of prices, practically enforced the general principles of the quantity theory.

§ 5. After the resumption of specie payments in Great Britain a long-continued discussion, dealing with the exceptional experiences of the Restriction Period, ensued, and resulted finally in the Bank Charter Act of 1844. Two different theories of prices were championed in this controversy, and were at that time known as the Currency, as distinct from the Banking, Principle.

The currency principle,[3] so called, was the legitimate outcome of Ricardo's quantity theory. Indeed, the real point of difference was the acceptance or rejection of the quantity theory, although the fight was ostensibly waged upon many detailed topics, such as the exchanges, country bank issues, etc. The variance

Currency School upheld the quantity theory.

[1] P. 451. [2] P. 468.

[3] The term "currency principle" has little distinguishable meaning in itself. It was first used by Mr. G. W. Norman, a director of the Bank of England before a Committee on Banks of Issue in 1840, Q. 2018. Before the same committee, Mr. Gilbart (an opponent of the currency principle), in 1841, said, Q. 932: "I mean by the phrase 'currency principle' a bank which shall do nothing else but issue notes for gold, and gold for notes." . . . By banking principles he meant, by contrast, "notes that are issued in the repayment of deposits, or in the discount of bills, or in the making of loans." Possibly the choice of the phrase was due to the idea that prices, the exchanges, etc., were dependent on the quantity of money, *i. e.*, on the quantity of the "currency," as the word was then used; and the school of writers who followed this principle obviously favored, in general, the same legislative programme.

between the two parties did not lie in any disagreement as to maintaining specie payments; both sides were strenuous in insisting on the strictest convertibility of the bank notes into gold. So that both parties approved the general conclusions of the Bullion Report.

The fundamental assumption of the currency school was that prices varied with an increase, or decrease, of the quantity of money in circulation, be it coin or paper money. With them the ideal currency would be one of specie alone. The important part of the monetary machinery in their belief was the foreign exchanges. Whenever, for any reason, the specie circulation became redundant prices would rise, imports of goods would be encouraged, and coin would soon be exported to pay for the increased imports. The outflow of bullion would bring down prices; and if there were exceptional reasons, in addition, for exporting specie, such as demands for maintaining troops abroad, prices would fall still lower. Then exports of goods would begin, and specie would tend to return. In this way an equable distribution of specie would be occasioned between the countries trading together. That is, a specie circulation would automatically regulate itself through the level of prices and the foreign exchanges.

Circulation, prices, and foreign exchange.

Then, when paper money was injected into the system, an increase of the quantity of the circulation would affect prices directly and disturb the relation of exports and imports, and the exchanges. If a paper money were allowed,[1] the ideal principle of regulation would be one such that it would cause the paper to act exactly as would a metallic circulation. An excess of paper money would raise prices in the same way that an excess of

Exchange to be regulated by quantity of circulation.

[1] "It is not sufficient merely to ordain, as Peel's Bill (1819) did, the convertibility of the notes. . . . It is now discovered that there is a liability to excessive issues of paper, even while that paper is convertible at will; and that to preserve the value of a paper circulation, not only must that paper be convertible into metallic money, but the whole of its oscillations must be made to correspond exactly, both in time and amount, with what would be the oscillations of a metallic currency, as indicated by the state of the bullion." Lord Overstone, Tracts, p. 138.

specie would. Therefore its quantity must be kept under strict control, so that the exchanges would act just the same as under a specie system, and so that prices should not be disturbed.

Then, also, it was urged that convertibility of paper money into coin was not a sufficient protection against excessive issues, against a change of prices, or against a derangement of the exchanges.[1] The claim was put forward that convertible paper could be issued in excess and cause a rise of prices. Bankers were able to increase, or decrease, their notes at pleasure; and, even if convertible, such issues, it was believed, would raise or depress the level of prices. Hence, if banks were permitted to issue notes at all, the notes must be obligatorily issued for gold, or gold for notes; by such a process the aggregate quantity of the circulation could not be altered by the bankers, but would necessarily vary in relation to the foreign exchanges just as if there were only specie in use. The mixed circulation of coin and paper might thus work without injury. The presumption, however, was that a disturbance of the exchanges was *prima facie* evidence of irregularities in the quantity of the currency; and legislative reforms should have for their aim to regulate the amount of the circulation so as to control these irregularities. The currency school tried to show that the issues of the Bank of England had depreciated in consequence of excessive quantity; that the extent of this depreciation was measured by the price of bullion; and that the price of bullion was shown by the price of foreign exchange.[1]

The claim of the currency school that a convertible currency could be issued to excess and could depreciate was

[1] The currency school erred in supposing that foreign exchange could be influenced solely by the depreciation of the bank notes. If foreign gold were purchased by these notes, there would be two elements in the computation: (1) the depreciation of the issues relatively to British gold coin at home; and (2) the changes in the amount of foreign gold given for British coin dependent on the fluctuations in the exchanges (between the shipping points) arising from variations in the relations of imports and exports of merchandise, bullion, or securities.

based, in my opinion, on a failure to recognize the distinction between immediate and ultimate redemption of the notes. Mr. G. W. Norman says:[1]

> "It is very true that convertible paper cannot permanently be depreciated, that it must at length become equivalent to the specie it represents; but under certain circumstances the adjustment may be long deferred."

"Under certain circumstances" is but a paraphrase of the absence of proper reserves to secure immediate redemption. If a demand obligation, like a note, is not redeemable on presentation, it is a confession of inability and assumes suspension; of course, it cannot remain at par with the coin for which it cannot be exchanged.

Immediate and ultimate redemption.

Much attention was in this period (as well as later) given to the definition of money, because if definite conclusions were reached as to what constituted money, then all such constituent forms of money should be regulated so that no action different from that produced by a specie currency could be possible; for all these forms, being money, could affect prices through the quantity issued. Therefore regulate their quantity.[2]

Definition of money important.

[1] Remarks, etc., on Currency and Banking (1838), p. 89.

[2] "A great part of the examination of witnesses by the Committee of the House of Commons on Banks of Issue in 1840, was directed to the eliciting of opinions as to the terms by which the various kinds of instruments of exchange should be designated and classified. . . .

"The importance which was attached to the attempt at settling those definitions seems to have arisen from an opinion which prevailed evidently among the members of the Committee, that, by arriving at a conclusion as to what part of the various forms of paper credit should be considered exclusively as money or currency, conferring a *power of purchase*, some criterion or test might be found of the influence of one of the principal elements upon which not only the state of trade and credit, but also general prices depend; it being assumed that commodities, although liable in each particular instance to be influenced by circumstances affecting the supply and demand, are more or less under a direct influence from variations in the quantity of money or currency. And the same assumption of a direct agency of the quantity of money, according to the assumed definition of it, on prices, will be found to be either expressed or implied in the vast majority of the numberless publications to which the currency question has given rise." Tooke, History of Prices, IV, pp. 173–174.

The leader of the currency school was undoubtedly Lord Overstone (Mr. S. Jones Lloyd), who was supported by Mr. G. W. Norman, Colonel Torrens, and by Sir Robert Peel (who carried through the Bank Charter Act of 1844). In the United States his followers were, among others, William M. Gouge, Condy Raguet, and Amasa Walker. That Lord Overstone was distinctly guided by the quantity theory, may be seen from the following statements:

> "The convertibility of the paper issues can only be maintained by a due regulation of the amount of them." [1]
>
> ". . . That paper money ought to be regulated in amount by the state of the exchanges, and that, other things remaining the same, its value increases as the quantity diminishes, and diminishes as the quantity increases." [2]

That is, by regulating the amount of its issues, Lord Overstone held that the Bank of England could influence the rate of foreign exchange, and protect herself against an unlimited demand for gold.[3] The fallacy of this is now too patent to need discussion. Yet his method of maintaining paper money at par was only an application of the quantity theory. By constantly comparing the value of notes with the price of gold (in notes, of course), and by a cautious reduction of the paper issues, he thought that the Bank of England could maintain their notes at par.[4] It will be observed that par was to be maintained, not primarily by redemption, but by a regulation of the quantity outstanding.[5] It did not seem to occur to him that reserves sufficient to secure immediate convertibility could keep almost any amount of paper at par (and if by "excess" it was meant that some of it was not needed as a medium of exchange that excess would be returned for redemption).

Lord Overstone.

Yet, when face to face with the theory of prices, Lord Overstone was not free from doubt:

[1] Tracts, etc. (ed. McCulloch), 1857, p. 134.

[2] *Ibid.*, p. 137. [3] *Ibid.*, pp. 53–54. [4] *Ibid.*, p. 55.

[5] "I understand by excessive issues, issues which render the amount of the paper circulation at any moment greater than would be the amount of a metallic circulation." *Ibid.*, p. 189.

"The connexion again between fluctuations in prices and variations in the amount of the circulating medium is a question of extremely difficult solution in its detail; and, probably, after the most laborious investigation of it, we can only come to the conclusion, that the immediate effect upon prices of any variation in the amount of the circulation may be over-estimated, whilst there undoubtedly exists a very intimate connexion between them." [1]

Overstone's doubts as to quantity theory.

"It is not unnatural that a tendency should arise to conclude, with too much haste . . . that fluctuations in the amount of the circulation are the immediate and only cause of *all* fluctuations which may occur in prices." [2]

If, in this last passage, he had meant that prices were determined by the value of the *standard* in which those prices are measured, and that changes in the supply of the *standard commodity* would have some effect (on the money side of the price ratio) upon the general level of prices, then Lord Overstone was very near the truth; but at the same time he would have been at some distance from the quantity theory.

The advocacy of the currency principle, being in truth a form of the quantity theory which long dominated public thinking, led directly to the enactment of the Bank Charter Act of 1844. In the requirement that the Bank notes should vary "in amount exactly as the circulation would have varied had it been metallic," we have the reason (of the currency school) for the familiar and important provision of the Act which separated entirely the Issue Department from the Banking Department of the Bank of England. The arrangement whereby the Issue Department was obliged to hold about two-thirds of the amount of a full circulation in securities and keep the remaining one-third in coin and bullion was the practical means suggested in order to secure the convertibility of the Bank notes; and yet it was so contrived that the total quantity of notes and coin would be the same as if there

Act of 1844 work of currency school.

[1] Tracts, etc. (ed. McCulloch), 1857, p. 120.

[2] *Ibid.*, p. 205.

were only a specie circulation. Hence "the convertibility of the notes of the Bank was to be secured, by regulating the amount of the issues with reference to the state of the Foreign Exchanges."[1] The object and purpose of the Act of 1844 was the limitation of the amount of the circulation;[2] hence there resulted the removal of the issues from the control of the Banking Department, and the provisions for the restriction and eventual retirement of the country bank issues. Sir Robert Peel inferred, says Mr. Tooke,[3] "that the Bank of England and the country banks, in modern practice and in a strictly convertible state of the paper, have also a direct power over the amount of their circulation, and thence an influence on the total quantity of *money;* and, consequently, on prices, and on trade and credit."

The separation of the Issue from the Banking Department, and the accompanying provisions, certainly did an important service in securing absolutely the convertibility of the notes; but it did a still greater service than that, and one not intended, or even suspected, by the school which pushed the scheme to enactment. It gave a practical object lesson to the world of the distinction between the monetary functions of the standard, and of the media of exchange; it not only secured the stability of the standard, but it disclosed the actual process by which a deposit currency (of checks and deposits), under the sole management of the Banking Department — and with only a minimum use of the standard commodity as a medium of exchange, — provided the greatest commercial centre of the world with the medium of exchange by which practically all of its wholesale transactions were efficiently and cheaply carried on. It showed in its operation — what the framers of the Act had evidently never suspected — that other things than coin, or even than convertible notes, were competent to provide almost the whole of the country's media of exchange

Act of 1844 showed separation of standard function from media of exchange.

[1] Lord Overstone, Tracts, etc., p. 59.

[2] Cf. Speeches of Sir Robert Peel, May 6 and 20, 1844.

[3] History of Prices, IV, p. 165. Cf. G. W. Norman, *op. cit.*, p. 169.

(or "currency"), while the value of the standard clearly enough was independently determined by the world value of gold. Moreover, the greatest possible flexibility in the media of exchange was provided by the items of securities (*i. e.*, loans) and deposits in the Banking Department; so that an enlargement of operations by the business public was instantly reflected in these accounts which provided the medium of exchange. Above all — to repeat — it disclosed, as never before, the separation of the workings of the function of money as a medium of exchange from that as a standard of prices. Prices were expressed in gold, not in deposit currency; prices had to do with the relative values of goods and gold, and not with the fluctuations in amount of the media of exchange, by which in fact the goods were transferred. The absolute separation of all connection of prices with the media of exchange of a country has been shown as if under a magnifying-glass by the history of the Act since 1844. Prices have fluctuated up and down after the Act of 1844 quite as they had before; expansion of credit has been as possible through the creation of deposit currency as it was through the issue of notes to the borrower (since both were demand liabilities of the Bank); and the usual cycle of overtrading, panic, and depression has gone on after the Act as well as before (as, *e. g.*, in 1847, 1857, 1866, 1873, 1890, and 1900). No one who understands the workings of the Act could for a moment believe that, in Great Britain at least, the general level of prices is dependent on the quantity of the media of exchange (no matter of what it is composed); but that price must be dependent on the comparison between goods and the standard, to which not only notes, but all media of exchange, are referred for tests of their solvency. For these great lessons we are indebted to the Act of 1844.

Lessons of Act of 1844 against quantity theory.

§ 6. In the doctrines known as the Banking Principles, we find the body of thinking which had grown up opposed to the general tenets of the quantity theory, and which is

properly associated with the name of Thomas Tooke. Of the same way of thinking, in general, were John Fullerton,[1] James Wilson,[2] Bonamy Price,[3] and (in France) Courcelle-Seneuil.[4]

Since the banking principle was opposed to the currency principle, the former may be best understood by a brief contrast with the latter. According to the currency school:

Banking principle.

1. Prices rise and fall with the increase or diminution of the amount of the circulation.

2. Banks have it in their power to increase at pleasure the quantity of paper money.

3. The efflux and influx of gold are to be regulated by regulating the issues of the banks.[5]

As opposed to these declarations, the banking principle included the ideas that:

1. Prices do not depend upon the quantity of the circulation.

2. Banks cannot increase their issues at pleasure; since, if convertible, any excess will be returned for redemption. Banks only follow the attitude of their customers.

3. Consequently, the issues of banks need not be regulated according to the price of bullion in the foreign exchanges.

Some writers have assumed that the two schools differed principally on the second proposition, and that the controversy pivoted on the question whether convertible paper could be issued to excess.[6] It will be found, I think, that the fundamental difference existed in regard to the first proposition.

The leader of the banking school, Thomas Tooke, in his earlier writings, had adhered to the views of the currency

[1] On the Regulation of Currencies and the Working of the New Bank Charter Act, etc. (London, 1844, 2d ed., 1845).

[2] Capital, Currency, and Banking (London, 1847), 8vo, pp. xxvi + 294.

[3] Principles of Currency (New York, 1875).

[4] Traité théorique et practique des opérations de banque (Paris, 6th ed., 1876).

[5] See Tooke, History of Prices, IV, pp. xi-xii.

[6] Cf. F. A. Walker, Money, pp. 420–421.

school;[1] but in Volume III of his *History of Prices* (1840) he broke completely with the currency doctrines.[2] As a merchant, it was natural that Tooke's methods should be mainly inductive. Although he collected much material on prices, he employed no index numbers or elaborate tables in his proof.[3] Indeed, he wrote before the existence of any extensive tables of prices by which only a proper examination of the quantity theory could be made. His habit of inquiring into the particular causes affecting the prices of each article from year to year led him to ascribe little importance to fluctuations of the currency as an influence on prices. In summing up his study of prices from 1793 to 1837, he said:

Tooke.

> "The whole tenour of the facts and reasonings adduced has been to establish the conclusion that the great alterations of prices originated, and mainly proceeded, from alterations in circumstances distinctly affecting the commodities, and not in the quantity of money, in relation to its functions."[4]

This statement is strongly reinforced by his later studies:

> "As far as trustworthy evidence can be obtained, there are no facts in the experience of the last Nine Years (1848–1856) which justify the conclusion, that in this country the fluctuations of Prices . . . were immediately preceded by, or connected with, changes in the amount of the aggregate outstanding circulation of Bank Notes."[5]

Tooke's facts against quantity theory.

[1] Particularly in his "Thoughts on High and Low Prices" (1823); in his volume "On the Currency in connexion with the Corn Trade" (1829); and in the first two volumes of his "History of Prices"(1823).

[2] His change of front is described in the preface to Vol. IV, pp. x–xii; and in Part III of Vol. IV, pp. 84–406 are given to a review of the controversy.

[3] See the criticism of Tooke by Jevons, "Investigations in Currency and Finance" (London, 1884), pp. 57–59, 120.

[4] History of Prices, II, pp. 350. Of course he admits that during the paper-money period the price level was raised to the extent of its depreciation as compared with gold (cf. II, 349); but this is the inevitable consequence of a fall in the value of the standard in which prices are expressed, and not necessarily of the increased quantity of the paper money.

[5] *Ibid.*, V, p. 344.

Tooke and Newmarch together even went so far as to deny that the new gold had advanced prices up to 1857:

> "As far as can be ascertained by a careful examination of the Course of Prices in this country as regards a considerable number of leading Commodities, it does not appear that the Prices prevailing in the early part of 1857, when compared with the Prices prevailing in 1851, justify the inference that, in any manifest and appreciable degree, the increase in the quantity of Metallic Money, by means of the New Gold, has raised the Prices of Commodities; — in other words, in every instance of a variation of Price, a full explanation of the change is apparently afforded by circumstances affecting the Supply or the demand." [1]

This passage, however, may not be construed as an opinion against the quantity theory, because events which may have cheapened gold after 1848 may have lowered the world value of gold, and thus caused a general rise of prices, without the necessity of attributing this rise to an increase in the circulation, even of gold. Since price is a comparison of goods with gold, a fall in the value of gold, for causes affecting gold itself and not goods, is tantamount to a rise in the prices of goods.

Among the circumstances affecting prices on the side of commodities, such as supply and demand, Tooke laid great stress on the importance of good and bad seasons.[2] As to other matters affecting the supply of commodities, Tooke particularly noticed the importance of commercial regulations, shipping freights, cost of insurance, and improvements in machinery.[3]

The discussion of the second point of difference between

[1] History of Prices, VI, p. 232.

[2] Thoughts on High and Low Prices, Part III, and History of Prices, I, Part I. While he denied the accuracy of Gregory King's rule as to the proportionate effect of a decline in the supply on the price of grain, he held that "a decided deficiency of supply is commonly attended in the case of corn, more than in that of most other articles, with an advance in price very much beyond the degree of the deficiency." Vol. I, p. 13. Cf. Thoughts, etc., p. 286.

[3] Thoughts on High and Low Prices (2d ed.), pp. 376–377, and also History of Prices, II, pp. 348–349.

the currency and banking schools has little concern with the essential purpose of this chapter, and properly belongs to a discussion of paper money. Our present purpose is to trace the history and development of theories of price.

The contention, however, that convertible notes could not be issued in excess, depends upon what "excess" means. Probably no one would deny the correctness of this position, if it were understood that convertibility carried with it efficient and ready means for immediate as well as for ultimate redemption. Instant convertibility, on demand, at various points throughout the districts wherein the notes are circulating, must, in the light of modern banking experience, permit to circulate no more of the medium of exchange than is required by the needs of business. But this should not be taken to imply that such notes, on entering the circulation, would not drive out a portion of the specie currency. To the extent that gold might have been used as a medium of exchange in aiding the movement of goods, a new issue of convertible notes would certainly take the place of this quantity of coin, and save to the community that amount of the cost of the machinery of exchange. The convertible paper and coin together might equal the sum of the original coin required; but it might very properly result that almost the whole of this medium might be made up of paper, coin being almost entirely retired to reserves. This is consistent with modern devices for saving the use of the valuable standard commodity from being passed about as a medium of exchange. In Great Britain, above the strata of small denominations of gold and silver coins, the Bank of England notes serve all the purposes of a medium of exchange instead of gold; while the deposit currency since 1844 appears also, as a medium of exchange, to have clearly relieved even the bank notes of such duty in the vast mass of transactions.

Could convertible notes be issued to excess?

Therefore, when the currency school contended that by excess they meant that "the whole money of the country, paper and gold, undistinguishably, is depreciated in com-

arison with the money of other countries," [1] they could have eferred only to the temporary processes, while in operation, by which the superfluous specie, made such by economizing devices like bank notes, was disposed of in the international distribution of the precious metals. But, assuming by "excess" that hey meant they did not wish gold to be displaced by bank otes, and hence that bank notes should not be issued beause, even if convertible, they would drive out gold (as videnced by the course of the exchanges) they were correct n their analysis of the operations; but their assumption was gainst the interests of the commercial public, because the ubstitution of an expensive gold circulation by paper was a aving to the community, and the objection to it has been isallowed by the quiet logic of events in the banking experince of Great Britain itself. On the other hand, so far as the anking school thought that bank notes, if convertible, could ot be issued in excess,[2] to the extent that the notes would ake the place of coin as a medium of exchange, they were in rror.

urrency hool had mind mporary nditions.

The kernel of truth in the discussion on this point is to e sought in the belief, strongly supported by Mr. Tooke's citation of facts, that the issue of convertible notes seemed to have had no direct effect upon prices. That is, the adjustment of specie and onvertible notes went on without sensibly affecting the comarison between goods and the specie standard by which lone prices are made. In my opinion, the currency school vere wrong in arguing that the issue of convertible notes

onvertible otes did not ffect prices.

[1] Cf. F. A. Walker, Money, pp. 430–431.

[2] The banking school pointed out correctly that in making loans the orrower has the option of taking gold, or a book credit (in the form of a eposit), or notes, as best suits his convenience (cf. Tooke, History of Prices, V, p. 184). Therefore it was the borrowing merchant, and not the bank, who ontrolled the amount of the note issues. The identity of the note and deosit function as currency from the point of view of the bank (cf. Dunbar's Theory and History of Banking, and chap. v, *supra*) had not then been clearly een by the currency school.

caused a rise of prices, and thereby led to the exportation of gold; the gold may have been exported, but not through the operation of a rise of prices.[1] The gold went out simply because economizing devices had made it superfluous and because it was, therefore, not needed in the currency.

Tooke and his friends noticed that a rise of prices and an increased issue of bank notes often went together. The sequence of events to them was this: a rise of prices due more or less to speculative activity, caused greater demands to be made upon the banks for loans, and additional notes might be issued for some of the new loans. They saw that an increase of bank notes could not increase prices, because, being convertible, they must always conform in value to the coin for which they could be exchanged; hence changes of prices must necessarily be referable only to changes in the demand for and the supply of the standard coin — so far as influences affecting the money side of the price comparison are concerned.

Relation of rise of prices to increase of notes.

§ 7. During the period of the preceding discussion, there was much writing on money. It has been my purpose, however, to try to give a sufficiently clear statement of the theory of prices through a presentation of the views of the prominent economists. Without disparagement to those omitted, it has been thought that the doctrines can be typically represented by a few as well as by many quotations. And it is believed that enough writers have been chosen to give the prevailing tendency of thought during the various historical periods. It was, also, regarded as unnecessary to load down a critical and constructive study — for such is the aim of this volume — by a mass of material obtained in following the detailed history of the quantity theory in France, Germany, and Italy. It seemed to me that the views of the early writers already given, although mainly English, were sufficient to show the evolution of the doctrine. The history of all the literature on this

Why few writers are quoted here.

[1] Cf. *infra*, chap. x, § 10.

theory in each country could, after all, throw no new light on the outcome of the discussion as to the truth of the quantity theory. Possibly I have already given too much space to its history; since *disce omnes ab uno* might be true. This must be my reason for quoting hereafter only a few of the eminent writers on money.

Senior[1] gave his attention to the cost of production of the precious metals, and held that a change in the cost of production of gold would affect prices in direct proportion to this change:

> "If the cost of obtaining gold should increase five per cent, . . . corn would fall from three guineas to three pounds a quarter."[2]

Senior urges both cost of production and quantity of money.

Of course, if the value of the standard in which prices were expressed were changed by a variation in its cost of production (accepting that theory of value), then, other things remaining the same, prices would certainly fluctuate as Senior asserted; but in any modern period the value of gold is affected more directly by demand and supply than by cost of production, and, also, "other things" on the side of commodities seldom remain the same. But if the cost of production of commodities remained the same, according to Senior,[3] the sole regulator of prices was the quantity of money (including notes as well as coin) in circulation.

Senior introduced credit as an influence on prices.

Without distinguishing between the functions of a standard and those of a medium of exchange, Senior regarded everything included under money as having an effect on prices. He did not seem to understand that in the quantity of so-called money in use, which served only as media of exchange, there might be great fluctuations without there being practically any variations in the value of the standard. Senior introduced the subject of credit as an influence affecting prices, credit instruments being substitutes for money. In a country having no specie circulation, a more extensive use of credit, a greater rapidity of

[1] On the Cost of Obtaining Money (1830).
[2] *Ibid.*, p. 54.
[3] *Ibid.*, p. 55.

circulation of its paper money, or an enlarged use of book credits would affect prices exactly as an increase in the quantity of the inconvertible notes. This was essentially the quantity theory, forms of credit being included as a part of money.

The economist[1] who, more than any other, connects the earlier with the recent writers, was, of course, John Stuart Mill,[2] who reasoned out a fairly complete theory of prices. Nominally he denied the second proposition of the currency school (as classified in the last section), but in reality he was so much under the domination of the quantity theory of prices, that he could not follow the banking school in all their doctrines. Like other writers of his time, he used money in a general sense, without distinguishing between its use as a standard and as a medium of exchange.[3] And while plainly disavowing his belief in the old form of the quantity theory, he constantly reasons upon a causal connection between prices and the amount of money in circulation (using the word in a comprehensive and unscientific fashion):

John Stuart Mill.

No distinction between standard and medium of exchange.

> "Money [*i. e.*, he can only mean the standard commodity] is a commodity, and its value is determined like that of other commodities, temporarily by demand and supply, permanently and on the average by cost of production.[4]
>
> "The supply of money, in short, is all the money *in circulation* at the time. The demand for money, again, consists of all

[1] His father, James Mill, in his "Elements of Political Economy," 1821, followed the quantity theory: Prices will change, other things being equal, if there is an alteration in (1) the amount of money, (2) in the rapidity of circulation, or (3) in the quantity of goods to be exchanged. Cf. pp. 131–135. Cf. also pp. 171–173

[2] Principles of Political Economy, with some of their Applications to Social Philosophy (2 vols., London, 1848). References are to the New York edition, 1868.

[3] Book III, chap. vii. Also, he says pointedly: "There are other things, such as bank notes, bills of exchange, and checques, which circulate as money, and perform all the functions of it" (vol. ii, p 65, Book III, chap. xi, § 1). A writer who assumes that checks and bills perform all the functions of money, necessarily including the standard function, is certain to run into difficulties in the further development of his theory of prices.

[4] *Ibid.*, p. 24 (Book III, chap. vii).

the goods offered for sale. . . . As the whole of the goods in the market compose the demand for money, so the whole of the money constitutes the demand for goods. The money and the goods are seeking each other for the purpose of being exchanged. They are reciprocally supply and demand to one another. It is indifferent whether, in characterizing the phenomena, we speak of the demand and supply of goods, or the supply and demand of money. They are equivalent expressions." [1]

Confusion as to demand and supply of gold.

Here is to be found a fundamental error: if gold, for instance, were the standard money, Mr. Mill was confused as to the demand for and supply of gold. The demand for it is any demand, non-monetary as well as monetary; and it is possible that the standard metal may scarcely be used at all as a medium of exchange, — as in England or the United States to-day, — and thus the quantity of it in the circulation offered for goods may very inadequately state the supply of gold; nor are we thus able to determine the demand for it. As will be seen later, also, the offer of gold for goods (certainly where the deposit currency is generally used) is not, moreover, a true statement of the demand for goods.

From his exposition of demand and supply, Mr. Mill arrived at this result:

"The value of money, other things being the same, varies inversely as its quantity." [2]

"The amount of goods and of transactions being the same, the value of money is inversely as its quantity multiplied by what is called the rapidity of circulation." [3]

States a strict quantity theory.

He follows this by explaining that while other commodities do not vary in value precisely with the changes in demand and supply, money does so vary. Because of his use of money in two senses, he falls into error. If he had thought of gold as a standard, and of its world value, he would have seen that an increase

[1] Principles of Political Economy, p. 27 (Book III. chap. viii, § 2).
[2] *Ibid.*, II. p. 30. [3] *Ibid.*, II. p. 31.

in the quantity of gold from the mines might not have changed its world value in the precise proportion of the increase in its supply. His mistake in contrasting the goods actually exchanged with the media of exchange, by which the process was necessarily carried out, leads him to this identical proposition:

> "The whole of the goods being in any case exchanged for the whole of the money which comes into the market to be laid out, they will sell for less or more of it, exactly according as less or more is brought."[1]

This is as much as to say that this quantity of money is required because this is the quantity required: a bucket is full of water, because the water fills the bucket. The actual result is taken as the means by which the result is obtained. The media of exchange actually used, as shown by the transactions, are taken as the reason why such and such a quantity must be given in exchange for the goods in question. An event, a *fait accompli*, is used as the explanation of itself.

Identical proposition.

While this is his basic reasoning, yet Mr. Mill properly goes on to introduce "the other things," which do not always remain the same:

> "The proposition which we have laid down respecting the dependence of general prices upon the quantity of money in circulation, must be understood as applying only to a state of things in which money, that is, gold or silver, is the exclusive instrument of exchange, and actually passes from hand to hand at every purchase, credit in any of its shapes being unknown. When credit comes into play as a means of purchasing, distinct from money in hand, we shall hereafter find that the connexion between prices and the amount of the circulating medium is much less direct and intimate, and that such connexion as does exist, no longer admits of so simple a mode of expression. . . .
>
> "That an increase of the quantity of money raises prices,

Credit and "other things" introduced.

[1] Principles of Political Economy, II, pp. 30–31.

and a diminution lowers them, is the most elementary proposition in the theory of currency, and without it we should have no key to any of the others. In any state of things, however, except the simple and primitive one which we have supposed, the proposition is only true, other things being the same." [1]

Credit acts as purchasing power.

In the first quotation Mr. Mill has in mind a situation in which the standard metal is also the only instrument of exchanging goods, there being a demand for the standard commodity as a medium of exchange. The reason, therefore, why the introduction of credit would change the result is because credit would act as a medium of exchange, — certainly not as a standard, — and would thereby relieve the standard metal from some, or even the largest part, of the demand for it as a medium of exchange. In that event the value of the standard would decline, and consequently prices would tend to rise. But Mr. Mill sees that the effect of credit on prices is not through its effect on the value of the standard, but directly through its service as a medium of exchange in being offered as purchasing power (wherein lies his error, in my judgment).

Value of gold influenced by supply as well as by demand.

In the second of the two quotations above, everything depends upon what is meant by "money." If Mr. Mill includes under money anything or everything, like bills and checks, which are used only, or partly, as a medium of exchange, then it is very far from being an "elementary proposition" to say that a change in the quantity of the media of exchange would directly affect the value of the standard metal, and thus raise or lower prices. Mr. Mill can, of course, have in mind only that state of things where the sole medium of exchange is the same commodity which forms the standard of prices. Assuming, for instance, an increase in the quantity of gold, we are asked to regard every other force affecting the value of gold as constant; but, since gold is a commodity like any other, its value is influenced not only by all the demands for gold (non-

[1] Principles of Political Economy, II, p. 33.

monetary as well as monetary), but also by its world supply. To take as basic one of several co-ordinate factors like the supply is misleading. It would be equally an "elementary proposition" to say that an increase in the demand for gold lowers prices and a diminution raises them, other things being the same.

Problem of price treated inconsistently.

Clearly enough, Mr. Mill does not hold that prices are reached through a comparison between goods and the standard article, but by a comparison between goods and the media of exchange by which they are in fact exchanged. Yet he believes that the introduction of money does not interfere with the general laws of value:

> "The relations of commodities to one another remain unaltered by money: the only new relation introduced is their relation to money itself."[1]

That is, our problem is the value of goods as related to the standard money. Price, then, should be a statement of value between goods and the standard. The problem of the relation between a commodity and gold is no different in kind than between two commodities of any sort. Hence the problem of price is to be reached only by this method. Is there not some confusion of thought by Mr. Mill as to the demand for and supply of gold (using gold as the type of a standard money)? As to supply and cost of production he cannot be misunderstood; but is he clear as to demand? It is obvious that the demand for gold includes all demands for its use, monetary and non-monetary; the monetary demand for gold is for an amount (very slight in these days) needed as a medium of exchange in being passed from hand to hand, and also for reserves to secure from time to time tests in the standard metal of the solvency of the various media of exchange other than the standard commodity. Instead of using demand in this sense, Mr. Mill regards it as "all goods offered for sale;" in short, the goods which in fact are offered for

[1] Principles of Political Economy, II, p. 24.

only that part of the standard metal which is used as a medium of exchange. In this way he arrives at a theory of "purchasing power," — which holds that the supply of goods brought to market is compared with an offer of purchasing power, through which prices are fixed. But Mr. Mill, at other times, is well aware that "it is not with money that things are really purchased." [1] Purchasing power, we can see, is a thing different from the media of exchange; the latter are brought into existence to ease the circulating path of marketable goods, while it is the goods which really constitute the purchasing power. Mr. Mill's conception of a demand for goods — in the air, so to speak — quite separate from other goods, but measured by the quantity of money (used as a medium of exchange) plus credit, is the centre of Mr. Mill's theory of price. His great reputation, to this day, makes no apology necessary for a full and careful statement of his views.

Theory of "purchasing" power.

He tried to avoid the difficulty to which I have just adverted, but he seems to be far from conclusive in the following quotations:

> "Since, however, the value of money really conforms, like that of other things, though more slowly, to its cost of production, some political economists have objected altogether to the statement that the value of money depends on its quantity combined with the rapidity of circulation; which, they think, is assuming a law for money that does not exist for any other commodity, when the truth is that it is governed by the very same laws. To this we may answer, in the first place, that the statement in question assumes no peculiar law. It is simply the law of demand and supply, which is acknowledged to be applicable to all commodities, and which, in the case of money as of most

Claim that quantity theory is only a statement of demand and supply.

[1] Principles of Political Economy, II, p. 22. He adds: "There cannot, in short, be intrinsically a more insignificant thing in the economy of society than money; except in the character of a contrivance for sparing time and labor. It is a machine for doing quickly and commodiously what would be done, though less quickly and commodiously, without it" (p. 23).

other things, is controlled, but not set aside, by the law of cost of production, since cost of production would have no effect on value if it could have none on supply. But, secondly, there really is, in one respect, a closer connexion between the value of money and its quantity, than between the values of other things and their quantity. The value of other things conforms to the changes in the cost of production, without requiring, as a condition, that there should be any actual alteration of the supply: the potential alteration is sufficient. . . . Now this is also true of gold and silver, considered as articles of expenditure for ornament and luxury; but it is not true of money. . . . That portion could not fall in value one-fourth, unless actually increased one-fourth. . . . Alterations, therefore, in the cost of production of the precious metals, do not act upon the value of money except just in proportion as they increase or diminish its quantity."[1]

This defence of the quantity theory has been used by others,[2] but it is aside from the point. Granting that the relative values of two articles are determined by demand and supply (including expenses of production), may it not be permitted to question whether demand and supply, in this case, are properly defined, or are used in more senses than one? Is the supply of gold only the amount of it in circulation (*i. e.*, as a medium of exchange) directly offered for goods? If gold is not, in fact, used as a medium of exchange directly offered for goods, is there, then, no demand for it, and does it have no value at all? And is the quantity of gold in use as a medium of exchange, when credit is added to it, the true measure of purchasing power for goods? I think not; and the reader of the forthcoming argument must decide. Mr. Mill's exposition of the effect of credit as purchasing power is worth quoting:

Demand and supply not properly used.

"In a state of commerce in which much credit is habitually given, general prices at any moment depend much more upon the state of credit than upon the quantity of money. For

[1] Principles of Political Economy, II, pp. 42–44 (Book III, chap. ix, § 3).
[2] F. A. Walker, Quar. Jour. Econ., July, 1895, p. 374.

credit . . . is purchasing power; and a person who, having credit, avails himself of it in the purchase of goods, creates just as much demand for the goods, and tends quite as much to raise their price, as if he made an equal amount of purchases with ready money. . . .

Effect of credit on prices.

"The forms of credit which create purchasing power, are those in which no money passes at the time, and very often none passes at all, the transactions being included with a mass of other transactions in an account, and nothing paid but a balance." [1]

"I apprehend that bank notes, bills, or cheques, as such, do not act on prices at all. What does act on prices is Credit, in whatever shape given, and whether it gives rise to any transferable instruments capable of passing into circulation, or not." [2]

"The amount of purchasing power which a person can exercise is composed of all the money in his possession or due to him, and all of his credit." [3]

"The fluctuations in the value of the currency are determined, not by its quantity, whether it consists of gold or paper, but by the expansions and contractions of credit." [4]

To this point one would have supposed that Mr. Mill had reference to normal prices, since he was laying down elemen-

[1] Principles of Political Economy, II, pp. 53–54 (Book III, chap. xi, § 3).

[2] *Ibid.*, p. 65 (Book III, chap. xii, § 1). See also: "One single exertion of the credit-power in the form of book-credit, is only the foundation of a single purchase: but if a bill is drawn, that same portion of credit may serve for as many purchases as the number of times the bill changes hands: while every bank note issued, renders the credit of the banker a purchasing power to that amount in the hands of all the successive holders, without impairing any power they may possess of effecting purchases on their own credit. Credit, in short, has exactly the same purchasing power with money; and as money tells upon prices not simply in proportion to its amount, but to its amount multiplied by the number of times it changes hands, so also does credit; and credit transferable from hand to hand is in that proportion more potent than credit, which only performs one purchase." *Ibid.*, p. 75 (Book III, chap. xii, § 4).

[3] *Ibid.*, p. 66 (Book III, chap. xii, § 2).

[4] *Ibid.*, p. 224 (Book III, chap. xxiv, § 3). The identity of the issue and deposit functions of banks in granting loans, Mr. Mill did not understand. Cf *Ibid.*, p. 227. And he speaks as if an article paid for by a check were bought by "money not in the banker's possession." Cf. pp. 65–66 (Book III, chap. xii, § 2).

tary propositions from which to proceed to final conclusions. One is, therefore, considerably taken aback to find that the preceding exposition of the quantity theory was intended to apply only to the fluctuations of market price. In the first of the following passages he seems to admit that the exchange of goods and gold would take place at the prices fixed by the general principles of value holding between any two articles (as I have contended in my criticisms):

Mill here treats only of market prices.

> "It is hardly necessary to say that the permanent value of money — the natural and average prices of commodities — are not in question here. These are determined by the cost of producing or of obtaining the precious metals. An ounce of gold or silver will in the long run exchange for as much of every other commodity, as can be produced or imported at the same cost with itself. . . .
>
> "It is not, however, with ultimate or average, but with immediate and temporary prices, that we are now concerned. These, as we have seen, may deviate very widely from the standard of cost of production. Among other causes of fluctuation, one we have found to be, the quantity of money in circulation. Other things being the same, an increase of the money in circulation raises prices, a diminution lowers them. If more money is thrown into circulation than the quantity which can circulate at a value conformable to its cost of production, the value of money, so long as the excess lasts, will remain below the standard of cost of production, and general prices will be sustained above the natural rate."[1]

From this statement, one must infer that the "natural rate" of prices is determined by the permanent, or average value of the standard metal; and that the quantity of money in circulation only affects the fluctuations of market prices. This certainly gives an entirely new twist to the quantity theory, quite inconsistent with the efficacy usually attributed to it by other writers, and by Mr. Mill

Normal and market prices.

[1] Principles of Political Economy, II, pp. 64–65 (Book III, chap. xii, § 1).

himself. If we are to take him literally, we must conclude that gold (or money), through the quantity in circulation, in the long run adjusts its value to goods (in prices) in such a way that the cost of production of gold tends to equal the cost of production of the article against which it exchanges. And there are passages which almost lead us to think that this is his fundamental theory of price, and one with which one must, with some exceptions, substantially agree.[1] But it is impossible to believe that, after all, Mr. Mill did not accept the quantity theory, for, in his mind, the price-making process could only go on between goods and the standard by the actual offer of the standard metal for goods; and, to him, a great fall in the cost of production of gold could only have its effect in a rise of prices through an actual offer of gold against goods, that is, by increasing the supply of gold in circulation.[2] And yet what view could he have had in mind when he uttered the following sarcasm on the quantity theory? —

Possible disavowal of quantity theory.

"There has been a great amount of discussion and argument on the question whether several of these forms of credit, and in particular whether bank notes, ought to be considered as money. The question is so purely verbal as to be scarcely worth raising, and one would have some difficulty in comprehending why so much importance is attached to it, if there were not some authorities who, still adhering to the *doctrine of the infancy of society and of political economy, that the quantity of money, compared with that of commodities, determines general prices*, think it important to prove that bank notes and no other forms of credit are money,

[1] "The value of money, then, conforms permanently, and, in a state of freedom [and with no seigniorage], almost immediately, to the value of the metal of which it is made." Principles of Political Economy, II, p. 40 (Book III, chap. ix, § 2).

[2] This jumps with his erroneous view (*Ibid.*, p. 29), that a potential increase of the precious metals, due, for instance, to new discoveries, could not have an effect on its value until the supply in use as money had been actually increased. And yet the great fall in the value of silver in 1876 lowered its market value because of a potential increase. Cf. also: "Money acts upon prices in no other way than by being tendered in exchange for commodities. The demand which influences the prices of commodities consists of the money offered for them." *Ibid.* p. 65 (Book III, chap. xii, § 2).

in order to support the inference that notes and no other forms of credit influence prices." [1]

§ 8. Coming to the writers of the present day, we may select certain ones from each country as typical of the different points of view regarding the value of money or the theory of prices. In all countries, however, we shall find a certain class of writing in considerable abundance which emphasizes the quantity theory of money, because that is the essential basis of bimetallism.[2] Inasmuch as the concurrent use of silver with gold has been urged primarily, because of the insufficient amount of gold to do the increasing money work of the world, wherever we find discussions in favor of bimetallism, there we shall find the quantity theory of money.

Bimetallism associated with the quantity theory.

In the United States the most ardent supporter both of bimetallism and of the quantity theory of money was Francis A. Walker.[3] In treating of the functions of money, he denied that there is any separate and independent function of a value denominator, since any money can serve as a value denominator only through its use as a medium of exchange.[4] To be sure, money may, according to him, serve as a standard of deferred payments; but he holds that a measure of value at a given time and place is not needed; [5] with him prices are not ob-

Francis A. Walker emphasizes only the medium of exchange.

[1] Principles of Political Economy, II, p. 83 (Book III, chap. xii, § 7). Cf. also p. 216 (Book III, chap. xxiv, § 1).

[2] "Most people, for example, who in recent years have called attention to the appreciation of gold have given an explanation which implies that there is a very direct relation between the quantity of metallic money and the general level of prices. They have argued that the supplies of gold have fallen off, that gold is hoarded by governments and banks, that silver has been demonetized, whilst on the other hand the volume of trade or the amount of exchanges to be effected has increased. This explanation really rests on the quantity theory in its simple form." J. S. Nicholson, A Treatise on Money (3d ed., 1895), p. 143.

[3] Money (New York, 1878). Political Economy (advanced course), New York (3d ed., 1888).

[4] Political Economy, p. 137 (Sec. 182).

[5] Money, pp. 281–288 ff. He distinguishes between a common denominator and the common measure of value (p. 10).

tained by a comparison between goods and a standard, but solely by being offered against the medium of exchange:

> "The need of money arises solely out of the fact of exchange, and the economic efficiency of money is limited strictly to the occasion for exchange." [1] . . .
>
> "Money is the medium of exchange. Whatever performs this function, does this work, is money, no matter what it is made of, and no matter how it came to be a medium at first, or why it continues to be such. So long as, in any community, there is an article which all producers take freely and as a matter of course, in exchange for whatever they have to sell, . . . that article is money. . . . There is no other test of money than this. That which does the money-work is the money-thing." [2]

Logically the value of money and the level of prices, after such a definition of money, are related directly to the amount of the medium of exchange:

> "The value of money, like the value of anything else, is purely a question of demand and supply. . . . The demand for money is the occasion for the use of money in effecting exchanges.[3] . . . The demand for money varies with the amount of money-work to be done, which, in turn, varies with the industrial organization of communities, with seasons, and with circumstances innumerable. . . . [The supply of money] is the money-force available to do the money-work required to be done, in the given community, at the given time, . . . but is composed of two factors — the amount of money and the rapidity of circulation." [4]

Holds extreme quantity theory.

[1] Political Economy, p. 121 (Sec. 160).

[2] *Ibid.*, p. 123 (Sec. 162). But bank checks, in his opinion, are not money because they do not have universal acceptability.

[3] *Ibid.*, pp. 128–129 (Secs. 169–170). Elsewhere (Money, p. 43, note) he says: "The value of money (with a given supply) is governed by the aggregate demand for it from all sources, both for use in the arts and for service as money." Cf. *Ibid.*, pp. 57, 63.

[4] Political Economy, pp. 130–131 (Secs. 172–174).

Hence with a given supply of money, if more goods are offered, prices will fall; also, if fewer goods are offered, prices will rise. With a given money work, a decrease of the supply of money will lower prices; and an increase in the supply will raise prices. What money is, then, acquires supreme importance; but, according to General Walker, only that medium of exchange which has "universal acceptability" is money, a definition which rules out bank checks, deposit currency, and devices which by most writers are now recognized as performing the function of a medium of exchange.[1] Yet he regards an inconvertible paper money of the Government as money.[2] He certainly leaves us with no very exact knowledge of what constitutes the supply of money as a factor in price.

The essential part of General Walker's theory of the value of money is contained in his discussion of seigniorage. He follows, he says, "Mr. Ricardo without deviation," believing that he was "the economist who most fully and justly apprehended the relations of money to price."[3] He quotes from Ricardo, however, only those passages which support the quantity theory:[4]

Follow Ricardian theory of seigniorage.

> "Let us suppose that a certain country requires for the purposes of domestic trade, 1,000,000 pieces, each containing 100 grains of fine gold. This would involve the use of 100,000,000 grains of gold as money; and a certain average level of prices would result from the relation between this amount (its rate of circulation being assumed constant, for the purposes of the

[1] Cf. Money, p. 405: "The bank-deposit system allows the mutual cancellation of vast bodies of indebtedness which would, without this agency, require the intervention of an actual medium of exchange; but deposits are not such a medium. In a word, deposits, like every other form of credit, save the use of money; they do not perform the functions of money."

If a deposit currency enables goods to be exchanged which would otherwise require a medium of exchange, it is difficult to believe that it does not do money work.

[2] Money, pp. 275–276.

[3] Political Economy, p. 146 (Sec. 197).

[4] Cf. *supra*, § 3, p. 244.

following illustration), and the demand for money arising from the exchanges actually requiring to be affected by the use of money.

"Now, suppose the principle of seigniorage to be introduced, the sovereign, out of every hundred grains brought to the mint, taking one to repay the actual cost of coinage, putting into circulation 1,000,000 pieces of 99 grains each, and placing 1,000,000 grains in his storehouse as treasure, or causing it to be manufactured into plate or ornament. . . .

"Will each piece now purchase as much of other commodities as before, or less?

"I answer, as much. There is the same demand for pieces for the purpose of exchange; there is the same supply; the same prices must result.

"But suppose the sovereign proceeds further, and takes, not one grain, but ten, from every hundred, issuing 1,000,000 pieces of only 90 grains each. Will the purchasing power of each piece be affected? Not in the least. There is the same demand for pieces, the same supply. People still want pieces of money;[1] can only get them by giving commodities for them; have as many commodities and no fewer to give; and there are just as many pieces and no more to be obtained in this way. . . .

"But let us take a step in a different direction. Let us suppose that the sovereign, instead of placing in his treasury the 10,000,000 grains which he took under his right of seigniorage, coins this gold also into pieces of 90 grains each, and pays them out for personal or public expenses. What will be the result? Depreciation will at once begin. The 90,000,000 grains, when coined into the same number of pieces of the same official (mint) denomination as the 100,000,000 had been, retained the same purchasing power; but when the 100,000,000 are coined into a larger number of pieces, the purchasing power of each piece at once falls."[2]

This theory of seigniorage, or the quantity theory, as applied to metallic money has been already examined when

[1] As if money were wanted for its own sake, when goods are the real objective.

[2] Political Economy, pp. 146–147 (Secs. 197–198).

Ricardo was under discussion,[1] and it was shown to apply at the best only to inconvertible paper and token money;[2] and that it does not hold as a theory of prices in regard to any metal whose coinage is free. A general theory of prices based on that which is apparently true only of token money and inconvertible paper, does not seem logically sound for present use, when there has been a general adoption of the free coinage of gold.

General Walker, however, says: "That Mr. Ricardo failed himself thus to qualify his proposition 'that however debased a coinage may become, it will preserve its mint value,' has caused much misapprehension of his views."[3] He then proceeds to perfect the chain of argument by adding a proviso (based on his universal acceptability of money):

Walker suggests improvement in Ricardian theory.

> "If debasement of the coin be carried so far and carried on so long that a popular reluctance to receive the money pieces be generated, sufficient to cause men to modify or limit their production in order to avoid exchanges, or to cause them to encounter the inconveniences of barter rather than handle the distrusted coin, then depreciation may result. That is, the supply of money will become excessive through the blow inflicted upon the demand for money. . . . Men take money because they believe others will, in turn, take it from them. If a man be only assured of this, he has no reason to care, in fact he does not care, what the coin contains."

The pivotal obligation, of course, in case the value of the debased coin is questioned, is to carry such conviction to the public that men will take it willingly at its face value. The only certain way is to be ready to give full value for it on demand. By redemption in gold, the paper, or debased coin, can always be automatically regulated so that the quantity in circulation can never

Teaches no importance as to "what the coin contains."

[1] *Supra*, § 3.

[2] That it does not even hold of token money, see chap. xv, § 2, nor of inconvertible paper money, *ibid.*, § 7.

[3] *Op. cit.*, p. 149 (Sec. 200).

surpass the demand for it as a medium of exchange. There is no surer way of showing the public that the debased coin (or inconvertible paper) should be willingly taken, than for the state to be ready to take it itself at par and to give gold for it when demanded. It is not safe to teach that it makes no difference "what the coin contains," provided men will only attribute a value to coins which the coins do not possess.[1] The fact is that in the past debased coins and inconvertible paper have depreciated in value, without changes in their quantity, without any evidence of a decreasing money work to be done, and without such reluctance to receive the money that resort was had to barter. The proviso introduced by General Walker is not one which gives the quantity theory logical or historical support.

Prices fixed only by actual exchanges.

In accordance with this extreme quantity theory, General Walker holds that the process of evaluation between goods and a money metal can take place only through the direct comparison of goods with that metal as a medium of exchange.[2] He boldly denies that cost of production operates in fixing prices; and instances cases where things exchange at rates quite different from their costs of production. Prices can be made only through a market comparison of the supply and demand. The modern world of business, however, can hardly accept this; since every one knows that manufacturers of steel, or similar goods, under the force of improvements in their processes, do not wait until the market is actually overstocked before lowering their prices conformably to the lowered expenses of production; the potential supply is sufficient. Nor do men, in a time of prosperity, wait until the quantity of the currency is duly increased before they raise the prices of steel. It must be a demand for steel, arising from the offer of other goods (often only nominally expressed in terms of the standard money) which raises the value of steel to a different relation with other goods. To General Walker a lowered cost of

[1] See also *infra*, chap. xv. on The Laws of Token Money.

[2] Political Economy, p. 137 (Sec. 183). Cf. Money, pp. 284–287.

obtaining gold could affect prices only through its use as a medium of exchange:

> "It requires the actual use of money, for a longer or shorter space of time, to effect those double exchanges which we call buying and selling; but the prices resulting from such exchanges may be applied to far greater bodies of wealth, without the use of money.
>
> "It is its use as a medium of exchange which determines its value; yet its value, so determined becomes the means of estimating values, without reference to actual exchanges."[1]

In short, he believes that the prices resulting from one, or a few, sales in which the money is actually passed from hand to hand as a medium of exchange give the prices at which vast masses of goods exchanged by credit are bought and sold.[2] That is, the prices obtained by one kind of a medium of exchange are those which must hold in transactions performed by other means. This seems highly absurd; but it is certainly General Walker's view that goods exchanged by credit have no effect on prices; that prices can be set only by the actual transfer of money. This is almost equivalent to saying that there can be no wholesale prices; since wholesale transactions are effected, in the main,

Modern credit devices have no effect on prices.

[1] Money, p. 64. General Walker explains as follows the effect which is produced when goods are exchanged by credit (*Ibid.*, p. 65):

> "It will be observed that every time a barter transaction [or by credit] is substituted for buying and selling, the demand for money is thereby diminished and its value thereby lowered (the supply remaining the same)."

As if barter were not buying and selling! And is not the largest part of our modern exchanges performed by a refined system of barter devised by banking institutions?

In such cases, it seems to me, the correct operation is this: The introduction of credit lessens the demand for gold as a medium of exchange; the world value of gold tends to fall; gold, as a commodity, falls in value relatively to other goods whose expenses of production have remained the same; then follows a necessary adjustment of prices to correspond to the change in relative values; the change in prices is a result of the change in the relative values of goods and gold. The change in prices, then, is not brought about through the means of an actual increase in the quantity of gold offered for goods.

[2] The Quantity Theory of Money, Quar. Jour. Econ. (July, 1895), p. 373.

by deposit currency, and not by the use of actual money. It is now only in retail trade that money is, generally speaking, passed from hand to hand; and hence retail prices must be the gauge for wholesale prices, — an obvious absurdity.

Seigniorage applied to inconvertible paper money.

To inconvertible paper money General Walker applied the theory of a seigniorage of one hundred per cent, and held that its value was regulated by its quantity.[1] To this the question may be asked, Is the value of inconvertible paper regulated in the end by any different principle than that which determines the value of private promises to pay, whose performance is delayed? If the issuer has funds enough to secure immediate redemption, does it make any difference to its value how much of the demand paper is outstanding? If there is an excess, it comes in for redemption. But if inconvertible, may not its value fluctuate with the estimate as to the possibilities of redemption? Non-dividend paying stocks have a market value, chiefly based on the various considerations bearing on the earnings of the company, and the possibility of future dividends. Given the total issues, the common stock has a value not dependent directly on the quantity of it, but on the amount of the earnings. In the case of United States notes, their value has fluctuated without relation to the quantity, but according to the ability and willingness of the Treasury to redeem, as evidenced by any event (like victory or defeat in the field) touching its chances of redemption.

Nicholson.

A recent writer, Professor J. S. Nicholson,[2] has in an open-minded way advocated the quantity theory, as a bimetallist, but he finds that theory beset by serious difficulties. His reasoning and English experience show that the standard function may be performed by one article like gold, while the media of exchange may be provided by entirely

[1] Cf. Money, chap. xvii. Inconvertible paper can serve, as the author declares, not only as a standard of deferred payments, but also as a standard of prices, in which goods are expressed, at any given time and place. Pol. Econ., p. 157.

[2] A Treatise on Money and Essays on Monetary Problems (London, 1888, 3d ed., 1895).

different things;[1] still in general he states the familiar quantity theory.[2] His historical illustrations of the action of the quantity theory are not, in my opinion, apposite.[3] He suggests that the rise of prices between 1850 and 1864 was due to the increased quantity of metallic money.[4] His admission of a standard function for gold, however, allows this phenomena to be explained by other reasons than an increased quantity of the media of exchange. Any great discovery of gold must have an effect in lowering its value as a standard, quite independent of other things; and, unless the demand for gold were correspondingly increased, general gold prices ought to rise. This, however, is nothing more than saying that as price is the ratio of goods to gold, a change on the money side of the price ratio will (if other things remain the same) raise prices. But this does not require the resort to any theory which bases prices upon the quantity of the gold actually passed from hand to hand as a medium of exchange. Likewise, his other illustrations[5] are quite capable of another bearing than that given them by the author.

Favors quantity theory.

Illustrations defective.

[1] P. 18.

[2] Pp. 14, 57–58.

[3] He says: "The decline of the Roman Empire was largely due to a deficiency of the circulating medium, which was remitted in payment of taxes in large quantities to Rome and the central cities of the empire. As a consequence, whilst in the provinces prices ruled low, and the miserable taxpayer would give any amount of wealth for coins, in the centre of the empire, where money was abundant, prices were high" (p. 61). As well say that low prices of eggs in the country as contrasted with the city markets are due to a deficient medium of exchange. May not a tyrannical taxation have been more potent than a deficient medium of exchange in producing misery?

[4] *Ibid.*, p. 62.

[5] *E. g.*, the silver of Potosi had an effect on prices, because the standard of prices had been lowered in value (p. 62).

Mr. Nicholson might possibly refuse the above explanation by virtue of his statement (p. 118): "Money is not simply a commodity like other commodities, with its value dependent merely on the value of its material." If by money he refers to a standard article, then certainly its value must be affected after the manner of other commodities; but if by money he refers to some media of exchange, then, of course, its "value" is not dependent on "its material." His illustration of bank notes and of banking devices seems to show that the latter

In his last edition (1895) Professor Nicholson seems to have boldly faced the obvious weakness of the quantity theory arising from the lack of agreement as to what constitutes the "money" which, by its changes of quantity, can affect the general level of prices. There is the statistical difficulty that the movement of prices does not, in fact, correspond to changes in the quantity of the metallic circulation. To meet this difficulty, he queries whether "money" should include all media of exchange (credit, bank notes, etc.). This conforms to the ordinary statements, "because the essence of the quantity theory," he adds,[1] "is that money determines prices by being actually used." This exposes the faulty logic of F. A. Walker. If we follow the latter's definition of money as "money is that money does," then we ought to include all media of exchange; but he rules out deposit currency, and the like. To Mr. Nicholson, however, an interpretation which includes checks is really fatal to the quantity theory;"[2] and he is finally led, in speaking of the so-called appreciation of gold, to confine "money" to gold:[3]

Sees weakness of quantity theory as usually stated.

Discloses Walker's fallacy.

> "Gold is the wind of commerce and the tide of trade, and its abundance or scarcity raises and lowers general prices just as the wind or tide raises or lowers the speed of vessels."[4]

was his meaning; but in the case of token coins (including the rupee) there is quite another explanation of their value (see *infra*, chap. xv, § 6).

[1] P. 144.

[2] Pp. 145, 148, 149. He says (p. 144): "Again, probably the very best instance of the theory is the case of inconvertible paper. There every one admits that the value depends on the quantity." In my opinion, the case of inconvertible paper is the very last one could accept as showing the quantity theory. A cursory study of the United States notes, 1862–1879, would show that there was apparently no connection whatever between the actual movement of prices and the quantity of the paper. Cf. S. M. Hardy, Prices and the Quantity Theory of Money, Jour. Polit. Econ., March, 1895.

[3] P. 146.

[4] P. 343. The quantity theory is still adhered to by Mr. Nicholson because (pp. 74, 146) he finds a limit on prices in the limit to the quantity of metallic resources on which all credit, as he insists, is based. (Cf. *supra*, chap. iv, § 2.) And yet one is unable to reconcile this theory with the facts specifically mentioned by the author (p. 150), when speaking of the fall of prices during the twenty years since

This author desires to approach the general level of prices apart from changes in particular commodities:

> "Our problem is the determination of *general* prices, and not . . . the changes in the *relative* values of commodities reckoned in prices. It is easy to see how, from causes affecting some particular article, that article may have fallen or risen in value; and similarly, through the whole range of commodities, we may discover causes which have made some to rise and others to fall. If, however, we find that, apart from these relative changes, a *general* change in the level has occurred, it is natural to conclude that this is due either to causes primarily affecting the standard by which prices are determined, or to causes of a very wide-reaching character affecting commodities."[1]

Such a penetrating characterization of the problem leads, in my opinion, directly away from the quantity theory. That is, it centres attention on the principle that changes important enough to influence the world value of the standard would, of course, affect its exchange relation to other commodities, and thereby cause a general change in the level of prices, — without relying for explanation, in any way whatever, upon a change in the quantity of the media of exchange in relation to the money work.[2] As to the last alternative in the above quotation, namely, wide-

Strikes close to true theory of price.

1873–1874: "But over the twenty years we can hardly say that the effective cause of the fall is to be found in the contraction of credit due to the amount of gold being insufficient to support a greater superstructure of 'representative money.'" If, as he says, there was an abundance of gold, and no restriction on credit, how could the fall of prices be explained according to any form of the quantity theory?

[1] P. 56.

[2] Indeed he hits the target straight when in referring to one side of the price ratio, he says emphatically: "If, then, it be granted that in gold-using countries gold is not only nominally, but really the standard of value, and that it is not merely a convenient medium, directly and indirectly (through the banks), for exchanging commodities, the values of which are determined in relation to some other standard, it must follow that movements in general prices can only be explained by taking into account the causes which affect the demand for, and the supply of gold" (pp. 347–348). If he had applied the same process of reasoning to the commodities side of the price ratio, he would have had the true principle in its entirety.

reaching causes affecting goods, he seems to imply that they, also, would affect the general price level (independent of changes in relative values of goods), and yet, strangely enough, he holds that improvements have little, or no effect, on prices:

Some errors.

"We are constantly told that the fall is due to a fall in freights, which is a cause only adequate *directly* to explain the fall of sea-borne produce relatively to commodities produced at home (*e. g.* unskilled labour); or that it is due to improvements in production by the adoption of particular processes which, as stated, is only adequate to explain directly the relative fall compared with things to which the processes do not apply.[1] Yet no one would be so foolish, in the case of the American greenbacks and the French *assignats*, as to attempt to explain the rise of prices by shortness of supply of, or increase of demand for, commodities, or a falling off in mechanical ingenuity.[2] Everyone can see, when it is magnified, that the quantity of the circulating medium compared with the transactions to be effected is fundamental. Yet when gold and silver money are the basis of circulation, it is thought that the quantity is of no importance. Prices fall, it is said, because of the greater power of man over nature, with the fact striking us in the face that the Dacotah farmers, with prairie soil and American machinery, cannot raise wheat at so low a price as in England in the Middle Ages."[3]

[1] But if gold were supposed stationary, would not such changes in the expenses of production alter the exchange value of these goods relatively to gold? And if the extension of improvements covered nearly all goods, would that not cause a fall in the average of gold prices? If gold happened (as was the fact), also, to be affected by a lowered cost, then it would be a question as to which fell most; if wages rose, and goods fell, in gold, the assumption would be that goods fell farthest, — not that improvements had had no influence at all.

[2] No; because one would at once argue that the standard itself had depreciated (no matter for what cause) and that, of course, prices would rise, whether more or less of the paper were issued (although the quantity issued might give some hint as to the postponement of immediate convertibility).

[3] Pp. 344–345. If the purchasing power of the coin for which the Dacotah wheat is sold be compared with that of the coin paid to English farmers in the Middle Ages, it would hardly be said that the expenses of production of the former were greater than the latter. A comparison of prices five hundred years apart is difficult.

Mr. Nicholson concludes that improvements in general have very little influence on prices;[1] hence the causes of serious changes in the level of prices must be found in those affecting the money side of the price ratio.[2]

The attitude of Professor Alfred Marshall, foremost of living English economists, is shown in his testimony before a parliamentary committee:[3]

"I accept the common doctrine that prices generally rise, other things being equal, in proportion to the volume of the metals which are used as currency. I think that changes in the other things which are taken as equal are very often, perhaps generally, more important than the changes in the volume of the precious metals. . . .

Alfred Marshall approves quantity theory of Mill.

"I think that we have not the statistics, and that we shall not, in this generation, be able to get the statistics, which would enable us to trace any statistical connection between the amount of the precious metals, or, as I would prefer to say, between the amount of currency and the average level of prices; because, supposing that the volume of the currency remains the same,

[1] See his discussion, pp. 353–358. His reference to extractive products ought to have given him pause: "*Agricultural produce* and the *produce of mines* follow in general the law of diminishing return. Consequently any permanent fall in the *relative value* and *price* of such produce . . . must be due to improvements in production or freight. But if there is a fall in price in these things, which is not merely indicative of a fall in relative value, the fall must be attributed to general currency causes, because the natural tendency is for the relative value of such produce to rise" (pp. 354–355). Sauerbeck's tables, which are made up mainly of extractive products show a marked fall of price (although not all things have fallen); but if the decline in land and ocean freights, the opening up of new resources have brought a phenomenal general progress of improvements, also, into the extractive industries, so that their expenses of production have thereby been lowered relatively to gold, then there is no reason for ascribing their fall solely to currency causes. To one conversant with the influences affecting the prices of extractive commodities such an explanation must seem unnecessary.

[2] Cf. pp. 357, 358. Hence his introduction of a theory of the interaction of gold and silver prices.

[3] Q. 9629 in Appendix to the Final Report of the Royal Commission appointed to inquire into the Recent Changes in the Relative Values of the Precious Metals (London, 1888). Vol. I of his "Principles of Economics" does not cover the subject of money.

the height of the average prices may yet vary in consequence of several causes."

Lack of statistics.

These causes are: (1) a change in the volume of the things on sale; (2) changes in the average number of times each of these things changes hands during the year; (3) changes in the number of times that each coin or each element of the currency changes hands during the year; (4) the proportion which purchases otherwise than by currency bear to purchases by means of currency. On all except the first statistics are wanting. Hence he adds:

> "It seems to me that it is an insufficient account to say that average prices depend on the amount of the currency combined with the amount of credit. For without any change in the amount of the currency[1] the average level of prices might be altered, not only by a change in the proportion of credit to other means of purchasing, but also by any other change in the methods of business, as for instance the growth of intermediaries."[2]

He believes, also, that the level of prices is not mainly affected by changes on the money side of the price ratio:

> "I do not consider that the main causes of fluctuations of prices have been fluctuations in the supplies of the precious metals. I believe that changes in the methods of business and the amounts of the commodities, or, as we may say, changes in environment, have much greater effects in disturbing prices than changes in these supplies of the precious metals."[3]

His theory of prices, it will be observed, however, demands a comparison between the quantity of money in use and the money work to be done. His general position is expressed as follows:

[1] He includes gold and silver and paper money, but not checks.

[2] He emphasizes this in Questions 9645–9648. He thinks gains in methods of business have enabled twenty or thirty times as much business to be done with only two or three times as much gold and silver as they had before. If this process goes on he thinks prices would rise.

[3] Q. 9696.

"I hold substantially the old-fashioned opinion that was expressed by Mill. I think that there was some evidence given before the Commission, with which I do not at all agree, to the effect that Mill overlooked the influence of credit in helping currency to support prices. I think it is relevant to point out that in the chapter on the subject . . . credit is stated distinctly to be 'a purchasing power similar to money.'" [1]

Public men, like Mr. Goschen [2] and Mr. Giffen,[3] in England once strongly urged the quantity theory in trying to show that the fall of prices since 1873 was due to a scarcity of gold. More recently,[4] however, Mr. Giffen has dropped the quantity theory. Noting that prices must be expressed in the standard, and were not governed by the quantity of the media of exchange, he still believed, however, in some peculiar force operating on prices from the money side of the price ratio:

"There are many facts to show that if prices are not exactly a function of the quantity of some kinds of money in proportion to the commodities circulated, yet the quantity of money is intimately associated with the range of prices; and fluctuations in prices, appear to be occasioned by fluctuations in the quantity of money." [5]

Pointing out correctly that a change in the value of the standard would have a direct effect on the general level of prices, and that a scarcity or abundance of the standard metal would affect its value, he argued that the quantity of money (*i.e.*, the standard metal) would have a direct influence on prices. But by not recognizing the practical operation of the immense existing stock in steadying the value of gold he erred in believing that considerable changes in demand for gold in certain countries were "intimately associated" with the level of prices. He clung to the idea

[1] Q. 10,124.
[2] Journal of the Institute of Bankers, April 18, 1883.
[3] Journal of the Royal Statistical Society, March, 1879.
[4] The Case against Bimetallism (1892), pp. 216–224.
[5] *Ibid.*, p. 217.

that the fall of prices in recent years was due to the scarcity of the standard money, speaking of

> "the facts, staring everyone in the face, that money, in the sense of the standard monetary substance gold, is relatively scarcer than it was."[1]

Mr. Giffen, failing here to realize fully that forces on the goods side of the price ratio might be equally powerful with those on the money side, was obliged to explain the fall of prices by a supposed scarcity of the standard. In the face of the enormous increase in the supply of gold, he must gracefully abandon even this last line of defence.

In the United States Horace White[2] strongly opposes the quantity theory, expounded by General Walker, as "barren and inconsequential," while not disputing the soundness of the reasoning. He rejects the theory as based on indeterminate factors, and accepts the statistical disproof of it as decisive.

Professor F. W. Taussig,[3] on the other hand, accepts the quantity theory:

> "That the general range of prices depends on the quantity of money, and that an increase in the quantity of money will bring about a general rise in prices, has become one of the commonplaces of economic theory. In this simple form of statement, 'money' means what we usually denote by that term, — coin, government notes, bank-notes. Five hundred years ago, even a hundred years ago, when almost all purchases were made with actual coin or notes, the proposition in all essentials was true. But the enormous development of credit in modern times compels a modification. . . .
>
> "The true way to state the conditions on which, in our day, the general range of prices depends, is to compare the quantity of commodities offered for sale with the total volume of *pur-*

[1] The Case against Bimetallism, p. 222. His account of Ricardo's quantity theory does not square with the quotations given above (*supra*, § 3, B). The bimetallists were quite justified in using Ricardo's seigniorage theory in support of their erroneous dogma.

[2] Money and Banking (1895), pp. 419–426.

[3] The Silver Situation in the United States (1893), pp. 73–75.

chasing power in terms of money. In this volume of purchasing power the largest item consists in our day not of actual money, but of credit in various forms. In countries like England and the United States it consists in the form of credit supplied by deposit banks. . . . At any one time, and for considerable lengths of time, the general range of prices, with a given volume of transactions, depends not on the quantity of money simply, but on the volume of credit used as purchasing power."

§ 9. Without attempting to exhaust the German literature on prices, a few typical writers will give the modern points of view in Germany.

Wilhelm Roscher[1] regarded the general law of price to be demand and supply of the money commodity:

"In the long run the supply depends chiefly upon the cost of production. Since the costs of production of the metals are different in different mines, their exchange value follows the cost in the worst mine which must nevertheless be worked in order to supply the total need."

Roscher does not adopt quantity theory.

The demand for money, not being determined by the population or the wealth of a country, is dependent on the following circumstances:

1. The number and amount of transfers to be effected at any given time by money;
2. The rapidity of circulation of money;
3. The amount and rapidity of circulation of substitutes for money.

A. E. F. Schäffle[2] holds much the same opinion:

"The value of all goods, even money, changes with the social conjunction of their individual cost-values on the side of supply, and their individual use values on the side of demand."[3]

Nor does Schäffle.

[1] System der Volkwirthschaft, I Band, Grundlagen der Nationalökonomie (20th ed., Stuttgart, 1892), §§ 122, 123. Roscher in note 2 (§ 123) disposes of Locke and Montesquieu.

[2] Das Gesellschaftliche System der menschlichen Wirthschaft, 3d ed., Vol. I, Tübingen (1873).

[3] P. 236.

Changes in the value of money, in his opinion, may be produced by causes working either upon the side of demand or upon that of supply:

I. On the side of supply there are:
   1. Changes in the cost of producing the money metals;
   2. The dissipation of hoarded money; or the withdrawal of money by hoarding;

II. On the side of demand there are:
   1. Decreased need of money due to:
      (1) Slowness of business;
      (2) Greater rapidity of circulation of money;
      (3) Increased use of substitutes for money;
   2. Increased need for money due to:
      (1) Crop failures which increase purchases from abroad;
      (2) Rapid investment of capital loaned in form of money;
      (3) War indemnities, etc.[1]

Eugen von Philippovich,[2] of Vienna, makes some penetrating explanations of the causes affecting prices:

"There are two classes of causes producing changes in the exchange value of money: 1) the change of money-prices may be due to an alteration upon the side of commodities, e. g. alterations in the cost of production, or transportation, or in the conditions of demand and supply. We see prices rise and fall every day for such reasons, and these are the only reasons commonly thought of. 2) There may also be causes of a change in price operating on the side of money, since money is made of a substance which, like every other product, is subject to changes in the conditions of production, and to changes of demand, not only for monetary uses, but also for use in the arts and as an article of ornament."[3]

Philippovich gives correct theory of price.

[1] § 147.
[2] Grundriss der Politischen Oekonomie, I Band, Freiburg i. B. (1893).
[3] Pp. 185–186.

It would be difficult to better express the principles which fundamentally govern prices, and which consequently avoid all necessity of following the dogma of comparing money work with the media by which that work is necessarily accomplished. In discussing further the causes affecting the money side of the price ratio, he finds them, in brief, in (1) the supply and in (2) the demand for the metal used in the circulation:

(1) "The cost of producing the precious metals . . . does not have, as is frequently asserted, an immediate influence upon the exchange value of money. Since the cost of production is reckoned in money, i. e. in the coined form of the precious metals, it follows that: 1) the production of the precious metals cannot be extended beyond the point where the cost of producing a certain weight expressed in money exceeds the sum of money which can be coined from that weight of metal; 2) on the other hand, the money-price of the precious metals, which are used as the standard, cannot fall below its coining value, since the right of free coinage goes with the recognition of a metal as the legal standard. . . . It follows *that the cost of production of the precious metals can have no influence upon the exchange value of money, but only upon the amount of money coined.*"[1]

Other variations in the supply of money may be produced by international payments, by use in the arts, and by hoarding. The above statements would possibly lead one to suppose that alterations in price due to changes in the cost of obtaining gold could not be effected except by actual changes in the quantity of money in circulation (that is, only in so far as it is used as a medium of exchange). This is a partial form of the quantity theory, — although far from its usual application. As to the demand for money, he says[2] that it depends upon the sums used:

Influenced by quantity theory.

1. To store up value in hoards, etc.
2. To effect payments.

[1] § 95.

[2] § 93, pp. 182–184.

The latter is the amount needed to enable private persons, banks, etc., to meet the demands for money made upon them. Since this sum depends upon the level of prices, and the level of prices upon the exchange value of money, the amount required in this way is affected by its value in exchange. It is also dependent upon the rapidity of circulation, but is decreased by the use of credit and banking facilities in making transfers of goods.[1]

Otto Arendt,[2] well known in Germany as an ardent bimetallist, has not been able to accept the quantity theory:

"It is as false to suppose that there is a mathematical agreement between the general state of prices and the amount of money in circulation as it is to deny entirely the connection between these two things. Slight fluctuations in the quantity of money will have no effect. Great fluctuations, on the other hand, for instance, a great increase in the quantity of paper money, will certainly have their effect on prices. But this factor is not an all-important one. In modern times most prices are governed, not by the industry of a single country, but by that of the world at large. Here it is, in our opinion, that the gold standard, whatever be our general theories, has undoubtedly been of practical effect in bringing about the fall in prices. Within any one country the development of credit has made it certain that the amount of money in circulation will accommodate itself to the demand. If the demand increases, the quantity of uncovered notes increases, the bank reserve declines, the rate of discount rises, and a higher rate of discount attracts the precious metals from abroad. If, on the other

Arendt opposes quantity theory.

Scarcity of gold and rate of interest.

[1] Although he identifies the doctrines of the currency school with the quantity theory, in speaking of it he says: "The increase or decrease of money has the tendency to produce a rise or fall of prices. . . . But the effect of a change in the money supply is not direct." The use of credit relieves money from some demand; but, he holds, credit affects prices directly, as is shown in commercial speculations. "Credit does not light the fire of speculation, but it feeds the blaze, or fans the glimmering sparks into an all-consuming blaze" (*op. cit.*, § 108).

[2] The extract is taken from a translation by F. W. Taussig, of Soetbeer's Materialien, p. 207 (in Atkinson's Report to State Department). But cf. also, Arendt's Die Vertragsmassige Doppelwährung, I, chap. xvii (Berlin, 1880).

hand, the amount of money in circulation exceeds the demand, coin accumulates in the banks, the rate of discount falls, and coin flows to places where it is more in demand. This healthy development of trade is checked nowadays only by the scarcity of gold, which causes every country to watch jealously its holding of gold, since no one knows whence gold, once lost, may be reobtained. In a sense, therefore, the amount of money in circulation depends on prices, and not prices on the amount of money. But this principle holds good only for a single country, not for the world at large, and it is in the world at large that general prices are fixed.

"It is not to be denied that the production of the precious metals has always exercised an extraordinary effect on general prices. This fact, hardly to be doubted, may have led to undue emphasis in stating the connection between the quantity of money and prices. For ourselves, we deduce an indirect *Quantitäts-Theorie*. A single country, by means of the rate of discount, regulates its circulation according to its needs. If an abundant supply of the precious metals sets in, a low rate of discount will prevail on all hands, and thereby a stimulus will be given to production; on the other hand, a scant supply of the precious metals will lead to an insufficiency in the circulating medium, and then the attempt must be made, as it is now made in England, to attract precious metals by means of high rates of discount. Other countries, which can afford to lose no precious metals, are affected by such action, so that the rise in the rate of discount becomes general, as is seen, for instance, in the rise in the rate of discount at our Imperial Bank. Such a state of things necessarily impedes production."

In a recent study Dr. Knut Wicksell[1] throws overboard as insufficient all previous theories of price, including the quantity theory, and proposes one based on the rate of interest in the money market. He denies that the general price level is altered by changes in the supply of, or demand for, commodities; and declares that the value of money does not depend on the cost of produc-

Wicksell denies quantity theory.

[1] Geldzins und Güterpreise: Eine Studie über die den Tauschwert des Geldes bestimmenden Ursachen (Jena, 1898).

ing the precious metals. As to the quantity theory, he holds that it might be theoretically valid, if one were strictly to accept the clause "other things being equal." It depends, he thinks, on the following suppositions:

1. That each person keeps by him constantly the same sum of money.

2. That the rapidity of circulation does not change.

3. That all, or at least an invariable proportion of all transactions are performed by the use of money.

4. That the supplies of metal used for money and for industrial purposes are distinct from each other.

None of these suppositions being in conformity with the facts, he thinks the opponents of the quantity theory have had an easy victory.[1]

As to his own hypothesis, while it throws light upon the detailed processes by which the rate of interest in the loan market is made to conform to the rate of production interest in actual industrial operations, it does not, in my opinion, explain the movements of price:

> "A lowering of the rate of interest on the part of credit institutions . . . will produce . . . a rise of the general price-level. . . . A rise in the rate of interest . . . will cause a fall in the price of all commodities."[2]

Prices regulated by rate of interest.

The important defect in this theory, without going into details, is that it does not deal with the relations of goods to the precious metals; that it has to do solely with the increase or decrease of goods as affected by the increase or diminution of credit by the banks. So long as price is used as the exchange relation between a money metal and goods, the price problem cannot be settled by a study of only one side of the price ratio.

§ 10. A selection of a few from the many eminent writers of France[3] and Italy will serve to convey their attitude on the theory of prices.

[1] Pp. 34–39. [2] P. 92. Cf. *infra*, chap. x, § 8.

[3] Louis Say (Principales causes de la richesse ou de la misère des peuples et

It will be interesting to choose from the mathematical school Léon Walras,[1] who favors the quantity theory. After an intricate mathematical demonstration he concludes as follows:

"All other things remaining the same, if the quantity of money increases, or if the sum of ready money which men find it expedient to keep on hand decreases, prices will rise in proportion. If the quantity of money is diminished, or if the sum of ready money which men find it expedient to keep on hand is increased, prices will fall in proportion. This law extends to money the principle according to which value increases as utility, and diminishes as the quantity becomes greater. It is plausible enough in itself; and many economists have formulated it before, at least so far as concerns the relation between changes in prices and changes in the quantity of money; but I have added something in proving it mathematically by means of all the preceding principles of pure political economy."

Walras, of mathematical school, favors quantity theory.

If it should turn out that the quantity theory did not explain the facts, it might be said to be evidence that an abstract mathematical method of discovery is incapable of adjustment to practical economic data.

Maurice Block[2] is somewhat inconsistent on the quantity theory:

"The material of which they [money] are made is subject to the same influences as other commodities, viz. 1, those of cost of production, and 2, those of supply and demand."

des particuliers, Paris, 1818) thought that money and goods would exchange in proportion to their costs of production (p. 31); but added: "If one could increase indefinitely the world's stock of silver money, as one can the supply of paper money, the silver, like the paper, would lose utility in proportion to its abundance" (p. 37). This might be interpreted to mean that the standard of prices would fall in value, thus affecting prices; for he says: "The supply from the mines of the new world has produced this effect in part."

[1] Eléments d'économie politique pure ou théorie de la richesse sociale, 3d ed., Lusanne (1896), p. 383.

[2] Le Progrès de la science économique depuis Adam Smith, 2d ed., II (Paris, 1897).

"It appears at once that the supply or demand for coin depends upon the relation between the total sum of commodities offered for sale in the whole country, and the money (specie or its substitutes) which serves as a medium of exchange. The commodities are, in a way, put in one scale of a balance, the coin in the other. Some writers put in the latter the entire stock of metallic money in the country. (The Germans call this the Quantitäts-Theorie, the theory of the supply of money.[1]) But most economists set over against commodities only the money actually in circulation, leaving out of the account coin lying idle or hoarded."[2]

Block doubtfully supports quantity theory.

"There is a necessary relation between the supply of money (in circulation) and the supply of commodities (offered for sale), although the results are not so mathematically exact in practice as the absolute formula of the theory would lead one to expect, for the reason that there are disturbing causes."[3]

Having thus accepted the quantity theory, Block promptly states other ways by which prices are affected:

"Thus the increasing abundance of the precious metals is not the chief cause of the fall of prices. For, to say nothing of wages, the value of food and stuffs actually increases, and the decline of manufactured goods should be attributed in large part to improvements in the methods of production."[4]

Paul Leroy-Beaulieu, one of the most eminent of French economists, accepts the classical quantity theory:

"The value of money is determined by demand and supply. . . . The supply of money should be understood as all the money

[1] Block himself adopts the quantity theory, but fails to define it rightly. "Most writers," he says, "understand by . . . the 'quantity-theory,' the relation between the quantity of the precious metals and the quantity of commodities in existence either in a single country, or in the whole world. The larger the supply of the metals, the more will their relative value fall. In general, this is true, but there are opposing causes which often counteract this effect, at least in part" (p. 42, note 2). The essence of the quantity theory seems to be that prices can be determined only by the relation between the money *in circulation* and the goods offered for sale.

[2] Pp. 41–44. [3] P. 46. [4] P. 135.

in circulation at a given moment, that is, all the money in the country not hoarded. The demand for money is all the goods destined for sale. Every buyer is a seller of money; every seller is a buyer of money. . . . The total of goods for sale and the total of money (excluding hoards and reserves) are mutually exchanged; they are reciprocally, one to the other, supply and demand.

"In normal and customary conditions of credit, every change in the quantity of money should produce a proportional rise or fall of prices. . . . The quantity of goods for sale, and the state of credit, being supposed constant, the value of money will depend upon its quantity and upon the importance of the transactions which are effected by it. The value of money is then inversely as its quantity multiplied by its rapidity of circulation.

"Thus, the cost of production of the precious metals used as money exercises upon the value of money itself a considerable influence; but this influence works only by an increase of the quantity of money in circulation, or by a reduction in the increase of the monetary stock. The influence of the cost of production is, then, not immediate.[1]

"It is not alone effective money, however, its abundance or its rarity, the rapidity or slowness of its circulation, it is not only the substitutes for money, such as bank-notes uncovered by a metallic reserve, — it is, also, in a general way, the state of credit, which influences prices.[2]

"Credit has a great influence upon prices, because it creates a demand for goods without an immediate equivalent."[3]

De Viti de Marco rehabilitates quantity theory.

A. de Viti de Marco[4] has made a special study on the quantity theory with a view to giving a statement of it which would free the doctrine from the strong objections urged against it. Starting with the assumption that the quantity is based upon —

[1] Traité d'économie politique, III, pp. 147–152.

[2] *Ibid.*, IV, p. 3.

[3] *Ibid.*, IV, p. 436.

[4] Moneta e Prezzi ossia il Principio Quantitativo in Rapporto alla Questione Monetaria (Roma, 1885).

"an almost self-evident maxim . . . that the prices of commodities depend upon the ratio between the amount of commodities and the amount of metallic money in circulation," [1]

he goes on to point out the conditions only under which the theory holds:

1. It applies only to a state of things in which metallic money is the exclusive instrument of exchange, credit being unknown.

2. There must be such free communication between the bullion market and coinage that an increase of gold and silver will act as an increase of money (*i. e.*, free coinage).

3. The supply of commodities is supposed to be unchanged.

4. The amount of increase in the supply of money must be considered, not absolutely, but in relation to the existing supply.

The author finds support for the theory in phenomena which really have another explanation.[2] In answering a statement of Hildebrand[3] that not the quantity of the circulation, but the desires of purchasers, affects prices, De Viti[4] finds in the very fact that more money is put in circulation a proof that the owners had increased desires and increased means with which to buy; and, hence, that they would pay higher prices. This is as much as to say that if one has more strength one will lift a heavier weight: but the real question is, Why should one care to lift a heavier weight? What is the reason why more money is offered? An increased

[1] P. 1.

[2] *E. g.*, he holds that the high prices after 1851, due to the increased supply of gold, furnish a proof of the quantity theory, adding that the general average price level is the best index of the value of money (chap. ii, § 1). If so, then why has not the unparalleled production of gold of recent years (doubled and trebled since he wrote) been followed by a rise of gold prices? Indeed, the facts after 1851, or since, do not allow the inference of a direct connection between the quantity of gold and the level of prices. Cf. *supra*, p. 284.

[3] R. Hildebrand, Die Theorie des Geldes (1883), chap. v, Geldmenge und Waarenpreise.

[4] Chap. ii, § 4.

means of purchase, of course, arises from the possession of more marketable goods. Their value, expressed in terms of the standard commodity, is offset against similar goods of a seller — who, from his own point of view, is a buyer with his goods as purchasing power. The mere media by which these goods are offset against each other are the most insignificant parts of the affair. They are the result, not the cause, of the rates of exchange. Indeed, instead of raising general prices, the case cited by the author is only the process by which the relative values of different goods are determined (and not the relation of goods in general to gold). If increased desires and increased means of purchase inevitably lead to higher prices, then we reach the *reductio ad absurdum* that with growing wealth and a greater abundance of satisfactions prices will rise, — a result contradicted by the observation of all mankind.

Errors.

In speaking of the fact that by speculation a sudden rise of prices may result, without a change in the quantity of money, he thinks that the rise is due to an increase of credit instruments, and that their increase depends upon the metallic reserves of the banks.[1] And yet he holds[2] that in a perfectly organized system of credit, where debits and credits offset each other, there is no reason in the nature of things why an extension of transactions should require larger bank reserves.[3] Moreover, if, as he says, credit economizes the use of specie, and indirectly raises prices, does he not admit that there are other ways of changing prices than through the direct offer of goods against money which the quantity theory demands? The effect on the value of the standard is one of the effective, although remote, ways of touching prices.[4]

Credit and prices.

[1] Chap. ii, § 6.

[2] *Ibid.*, § 5.

[3] May he not find an explanation in my distinction between normal and abnormal credit? (See *supra*, chap. iv.)

[4] In chap. ii, § 9, he thinks that a general fall in cost of production of goods would not cause a fall of prices, unless there were an actual increase of production. Cf. *infra*, chap. ix, § 6.

In the discussion of the movement of gold in international trade, he believes that the rise of prices in the gold-producing countries is "a necessary consequence of the quantity principle."[1] On the contrary, a rise of prices near the mines is only an evidence that the gold has changed in value there for reasons connected with its ease of acquisition. This change of value is itself a change of prices: that is what a change in the value of gold necessarily implies. Hence it is not necessary to hunt for a second step to explain the rise of prices, such as an increased offer of money in circulation against a given supply of goods.[2]

Rise of prices in mining countries.

The distinguished Italian economist, Achille Loria,[3] made a special examination of the value of money. He regarded the peculiar difficulties in applying the law of cost of production to the precious metals as the reason why some writers were led to support the old quantity theory of Locke, Montesquieu, and Hume. Loria devotes his pages to showing how cost of production does regulate the value of the metals. If money is a commodity, he holds, it will not be brought to market unless the producers obtain the normal return which will cover their expenses of production:

Achille Loria opposes the quantity theory.

> "The cost of the metal determines the value of money, and the value determines the quantity which can circulate; it is then the cost that determines the quantity, not the quantity which determines the cost and the value."[4]

Effect of supply of precious metals.

[1] Chap. vi, p. 150.

[2] For a further discussion of this point, see *infra*, chap. ix, § 2.

[3] Studi sul valore della Moneta (Turin, 1891).

[4] P. 6. To the objection that cost is largely a matter of chance in discoveries of deposits, Loria replies that accidental phenomena do not establish the universal laws of economics; that the law of cost applies only to mining countries, as is shown by the abandonment of European mines when the value of the metal obtained fell below the expenses of production there; while, in non-mining countries, the value may not fluctuate closely with expenses of production (pp. 11–13). "Every exportation or importation of metal is merely the result of an increase or a decline in its cost of importation, and . . . this remains the exclusive regulator of the value of money in countries which have no mines" (p. 34).

The quantity of money required in a community is a function of three variables:

1. The sum of the costs, or of the values, of all the goods to be exchanged by the use of money.
2. The rapidity of circulation.
3. The cost of producing money (specie).

The amount of money needed is theoretically equal to the quantity of labor (typifying the cost of production) contained in the goods to be exchanged (V), divided by the rapidity of circulation (v). Hence $\frac{V}{v} = Q$, Demand for money. the amount of labor which must be contained in the total quantity of money in circulation.[1] In short, including under rapidity of circulation banking expedients serving as media of exchange, Loria's theory of prices is that the quantity of money metal used as a medium of exchange is determined by the value of the goods to be exchanged; and that the value of the standard itself is determined, in the long run, by expenses of production. The influence of the durability of the precious metals on the existing supply, however, does not seem to be given its due importance.

The quantity theory, on the other hand, receives support from one of the ablest of Italian economists, Maffeo Pantaleoni:[2]

> "But if we suppose a commodity which is exclusively a medium of exchange, we are confronted by the fact that the utility of the entire mass of the commodity set apart for such use, be it great or little, never varies. In fact, supposing a *régime* of divided labor, so perfect that each person produces only with a view to the market, that is, to exchanges, and supposing that no barter be effected, *all the wares will exchange against all the money*, be it much

Pantaleoni favors quantity theory.

[1] This is on the supposition that the metal is used only as money. If the demand for the arts be added, poorer mines will be worked and less money will represent the same labor expenditure as before.

[2] Pure Economics, translated by T. Boston Bruce (London, 1898). See especially Part III, chap. ii, § 4 (pp. 227–231).

or little. The total value of the mass of money, that is, the integral value of the mass, or yet again the value of the aggregate amount of money, will, therefore, be constant." [1]

Changing the supposition so that only goods sold for money are compared with the money in circulation, it still remains true that (money work being constant) the value of the total mass of money used in the exchanges will be independent of its quantity: [2]

"But, if the integral value of money is constant, the value of each piece of money, that is, the unitary value of money, must necessarily vary inversely as its quantity. Supposing the volume of business transactions to remain the same, and the quantity of available money to be doubled or halved, then since the whole amount of money will be exchanged against the whole amount of commodities, *prices will be doubled or halved*, that is, *the unitary values will be halved or doubled.*

"The unitary values of money are thus determined directly as the *demand for money*, and inversely as the *supply*. The *requirements of circulation*, however, or the volume of business transactions, which is the demand for money, resolves itself into two elements, viz.: the *quantity of commodities offered for sale*, and the *number of times that the same commodity is bought and sold for money*. . . . The available amount of money . . . comes to be likewise the product of its quantity and the *rapidity of circulation*. The value of the monetary unit will therefore be expressed by the formula $v = \frac{m}{qr}$; in which the *volume of business transactions*, i. e., the demand for money, is represented by m, and the supply of money by the product of its quantity, q, multiplied by the rapidity of its circulation, r." [3]

In assuming a money commodity which is solely a medium of exchange, and not introducing its function as a standard, I find the error which, in my judgment, vitiates Pantaleoni's conclusions. Then, arguing from a constant utility in the whole mass of money, — as if it must of necessity be used solely as a medium of exchange,

Overlooks the standard function.

[1] Pp. 228–229. [2] P. 229. [3] Pp. 230–231.

— he perpetuates the error of the original supposition, reaching a result which seems to me to be quite wide from the facts. If the offer of more money, when its quantity has been doubled or halved, is obligatory, then his conclusion follows; but in the world of business there is no practical reason why more should be offered. It is to be kept in mind that in the price evaluation we have to do with the exchange value of money in its function as a standard.

Karl Marx makes the quantity of money depend on its value, not the value on its quantity. The value of money, he says, depends on the quantity of labor in it. When this changes, the value of money changes, and then prices are affected. When prices rise, more money comes into circulation, and when prices fall, the quantity decreases.[1]

Karl Marx.

De Viti replies (1) that the value of gold or silver is not determined by the amount of labor necessary to produce them; (2) that the quantity of the circulation does not depend on prices, since that would imply the possibility of increasing the supply of gold or silver at will.[2]

[1] Capital, Part I, chap. iii, § 2.

[2] *Op. cit.*, chap. ii, §§ 2, 3.

CHAPTER VIII

CRITICAL EXAMINATION OF THE QUANTITY THEORY

Thoughe Gould and Silver be the Mettalles commonly whearin the coine is stricken to be tokens in exchange of thinges betewne man and man, yet it is the wares that be necessarie for mans use that are exchanged in dede for the outward name of the coyne, and yt is the varietie and plentie therof that maketh the price therof base or higher. — W. S. (probably John Hales), 1581.

S. M. HARDY, *The Quantity of Money and Prices*, 1860–1891, Jour. Pol. Econ., March, 1895. — W. C. MITCHELL, *The Quantity Theory of the Value of Money*, Jour. Pol. Econ., March, 1896. — W. A. SCOTT, *The Quantity Theory*, Annals of Amer. Acad., March, 1897. — LORD FARRER, *The Quantitative Theory of Money and Prices*, Gold Standard Defence Association, No. 29.

§ 1. THE study of the laws of money to this point has been preliminary to the central and crucial discussion of the principles regulating prices. It is the pivotal subject in the whole exposition of money. Unless our examination into this theme should give us a clearer understanding of the problem of prices, and some material aid in its solution, it would better not have been attempted at all. For on no other topic in the whole history of economics from Nicole Orêsme to the present time has there been more extended controversy, with less practical results, than on the theory of prices. One must, therefore, approach so difficult a task in a proper and judicial spirit.

Nature of the task.

In trying to expound the principles regulating the general level of prices, one is met by the reiterated statement of a theory of prices so long embedded in economic literature, so well supported by high authority, and with which economic treatises of to-day are so thoroughly impregnated — not only in the topic of money, but also of international trade — that it requires no ordinary sense of conviction to question its soundness. I refer, of course, to the theory that general prices are determined by a comparison between the quantity of money in circulation and the amount of the transactions

in goods. The literature on this theory given in the last chapter, although it does not include all even of important writers, is enough to enable the reader to learn of its origin, and to grasp its meaning and scope, without any possible danger of its being misinterpreted in the critical examination about to be given to it.

Economic method.

At the outset one is obliged to raise the question of method, — and the one to be adopted can be none other than that laid down by Cairnes and earnestly supported by General Walker. If any principle, no matter how generally accepted in the past, fails to explain the facts of modern society, it is to be supposed either that it is based on false premises, or else that the reasoning by which it was established is erroneous. Inductive study is a means of ascertaining whether the principle is a correct statement of the relations between cause and effect. Certainly one cannot sympathize with the unscientific spirit shown by partisans of any one theory who deny the right of the investigator to apply such economic tests as an inductive study to ascertain its validity.[1] The age of a dogma should be no protection from critical inquiry. If the basic assumptions of the quantity theory are shown to be unsound, if the reasoning is found to be defective, and if it can be plainly proved that the doctrine does not satisfactorily explain the admitted facts, — if all these points can be established, then it is evident that it must be given up. Finally, in addition to all this, if another theory of price regulation can be given which will explain the available statistical data, there will be confirmation of the destructive criticism. The present chapter, accordingly, will be concerned with this latter task; the constructive theory of prices, which will, better than the quantity theory, explain the facts, will be reserved to the following chapter.

[1] General Walker's attitude in asserting that the quantity theory of money was only a statement of the principle of demand and supply, and therefore not to be tested by inductive study, cannot be accepted. Cf. Quar. Jour. Econ., July, 1895, p. 374.

§ 2. The essence of the quantity theory is unquestionably this: (1) price-making can go on only through an actual exchange of "money" against goods; (2) and the level of prices is fixed by a comparison between the amount of exchanging to be effected (taking into account the number of times each commodity changes hands) and the quantity of "money" (however defined) in circulation (taking into account the rapidity of circulation).

The conditions only under which the theory can be regarded as operative are the following:

Conditions under which the quantity theory holds.

1. A monopoly of the coinage, or of the issues of paper money, by the central authority. In the case of metals no free coinage can be allowed;[1] otherwise the coins would have the value of the bullion from which they are made (cost of manufacturing the coins apart). Under the modern *régime* of free coinage of gold, in most commercial countries, — since there is no limit to the quantity coined, — the only forms of money having the characteristic of government monopoly are token coins and inconvertible paper money. If, however, the theory be interpreted as true even under free coinage of the money metal, it must be urged by its supporters that the value of the bullion is fixed by the value of the coins which are in actual circulation as a medium of exchange; that only through its use as a medium of exchange can its value both as bullion and coin be determined; and that the demand for money is exclusively or mainly a demand for the medium of exchange.

2. The second condition follows from this: the theory holds true only in that state of things (cf. Mill) in which "money" is the only instrument of exchange, and is actually passed from hand to hand. Exchanges performed by barter, or by those refined methods of barter devised by banks, can have no influence on prices.[2] Credit is supposed to be non-existent.

[1] This is clearly the basis of Ricardo's and Walker's belief; but De Viti (*op. cit.*, chap. 1, § 3, 2) thinks there must be free communication between bullion and the coinage. Then, certainly, in fixing prices, the latter must admit any cause which affects the value of the bullion.

[2] So holds General Walker, as already quoted: "Many . . . goods may commercially be exchanged directly against each other in barter, or indirectly

3. If applied to modern conditions, when free coinage and credit (with other forms of media of exchange) exist unhindered, the attempt has been made by those supporters of the theory (such as Mill), who differ from General Walker, to give it universality by explaining that credit has exactly the same effect on prices as "money."

The exposition and proof of the theory quite invariably hark back to a supposition of monopoly and of the use of "money" alone in all exchanges. What is true, given the hypothesis, is applied as true of the modern world of facts which are not included in the hypothesis. The transplantation of the "axiomatic principle" from its hypothetical soil to the conditions of actual life presents serious logical difficulties, and a necessity arises for stretching both the theory and the facts to meet the situation. This is the explanation, in my opinion, of the curious want of consensus in regard to what is "money" in the quantity theory, and to the variety of ways in which prices are supposed to be determined. The fact is, the fundamental assumption is false, and the wrong theory can never be made to fit the phenomena of price.

§ 3. The central error of the quantity theory lies, in my judgment, in the assumed premise that prices are fixed by a comparison between the goods to be exchanged (*i. e.*, the money work) and the media of exchange by which the work is done. This practically amounts to saying that the force regulating the price is the price, or the amount of money, actually obtained, whatever that may be. What, for instance, regulates the price of wheat? Why, of course, the amount of the medium of exchange for which it is in fact exchanged. How much wood can a man chop? Why, great discovery! the wood that he chops! Such a process of price-making (speaking now of

Fundamental error of quantity theory.

through the intervention of commercial and financial credit, without the use of money. Such goods do not constitute a factor in the demand for money." Quar. Jour. Econ., July, 1895, p. 373.

all goods and of all the money in circulation) seems to be nothing more than comparing the goods with the outcome of the comparison; comparing the thing to be done with the thing done. It confuses the effect with the cause producing the effect. It gives us no clue to the causes affecting general prices. What fixes the price of goods? Why, the prices which are fixed.

Price-making precedes exchange.

The offer of a certain amount of a medium of exchange for goods merely records the result of the antecedent price-making process. In the case of book entries, or book credits of any form, this can be seen at once. The price must be fixed before any such entry is possible.[1] Or, if we rule out credit, are farmers, for instance, really uninfluenced in fixing the prices of eggs in gold by any other considerations than the total amount of money work and the total media of exchange? But if I am answered by a statement that this is a case of the price of a single commodity, while the quantity theory has to do with the general price level, I must reply that there is no abstract level of prices independent of particular prices; that a general level of prices is nothing but an average made up of the actual quotations of single articles; that the conditions under which the price of a particular commodity is fixed must, in the nature of things, appear in the conglomerate average of separate quotations.

Illustrations of the fallacy.

How insignificant is the real influence of a medium of exchange upon the relative values of goods and gold may, perhaps, be illustrated in the following manner: During our Civil War a Northern officer, A, was negotiating an exchange of prisoners with a Southern officer, B. A presented cartels, or paper, containing duly certified names, etc., to B, at Richmond, showing that he had delivered 10,000 Southern prisoners at Memphis, as an order for 10,000 Northern prisoners held by B at Richmond.

[1] Here General Walker might have said that this price must be that fixed by some actual exchange against money elsewhere; but as to this I shall have something to say later.

This basis for A's demand on B had no other force than arose from the possession of 10,000 Southern prisoners; the "purchasing power" of the paper, so to speak, was nothing in itself; the quantity of the paper intermediary was a consequence of the number of prisoners already taken, dependent on the results of previous operations of the army, the skill of generals, the efficiency of troops, etc., — in short, on the productive process of capturing as measured against the obstacles presented by the enemy. Likewise, the exchange could not take place if there were no Northern prisoners held by B to offset those offered by A.

The quantity of these personal vouchers was only a fact, the outcome of all the previous negotiations between A and B (or their respective governments) as to the valuation of privates for one captain, the number of corporals to be given for one major, etc. The paper demands offered at the point of actual exchange by A and B were merely the resultant, or outcome, of the whole operations of exchange which lay behind the actual transfer at that moment. It was not the quantity of those personal vouchers that determined how many men could be exchanged, or even the rate of exchange. On the contrary, the number of captured men in Northern prisons, the number of such men in Southern prisons, the agreements (*i. e.*, the price-making process) between the officials as to the value of officers expressed in those of other ranks, determined the nature of the intermediary paper.

In brief, to change the figure, the quantity of money used as the actual media of exchange no more determines price than the entries of deeds and conveyances in the county records determine the prices of the land whose sale is stated in the papers recorded. The circulating medium is not a cause of prices; it is only a convenient means of exchanging goods after the price has been already fixed; and the medium may, or may not, be the material of which the standard of prices is composed. Price is an exchange relation between goods and the standard

Price changes related to the standard, not to the media of exchange.

money commodity, whether that money commodity be used as a medium of exchange or not. A wide distinction exists between the standard in which prices of goods are expressed and the media of exchange by which the goods are actually transferred. Earlier writers gave no attention to the evolutionary process by which media of exchange, different from the standard commodity, have been brought into the commercial world.[1] Some forms of money serve only as media of exchange, and have no influence whatever on price. One would suppose that this distinction between the standard in which prices are expressed and the medium by which goods are exchanged is so elementary that its truth needs no explanation. But General Walker regarded the medium of exchange as the chief, if not the whole, function of money:

> "This function [Measure of Value] is not a separate and independent function of money, but a purely incidental and subordinate function; that not only is anything which is competent to serve as the general medium of exchange, adequate also to serve as the common denominator of values; but that anything which does, in fact, serve as the medium of exchange, must, in the very act and part of doing so, create the price-current."

Such a conception of money carried with it, of course, quite arbitrary discriminations as to devices which most men regard as media of exchange, and it also carried with it their dogmatic exclusion from the category of money.[2] It is irreconcilable with the facts of the day.

In speaking of the demand for, and the supply of, money, Mr. Mill believed that an increase in the quantity of money

[1] See *supra*, chap. i, § 4.

[2] Political Economy, p. 156. It would be a matter of interest to know what interpretation General Walker gave to several principles of banking. He denied that checks, etc. were money; and hence that they could not be a medium of exchange! If he excluded them on the ground that they did not have "universality," that would not change the fact that they have served as a medium of exchange to an astonishing extent.

offered for goods would raise their prices *pro tanto* (other things being the same). But an offer of an increased amount of money for other things is in itself a change of price — the very thing to be explained. If one admits the rise of price, of course more money would be offered. But the point is: Why is more money offered? That is, Why have prices risen? Certainly the exchange value, for instance, of gold in goods can be changed only by something affecting gold itself, or by something affecting the goods, each side compared with the other.[1]

If, with Mr. Mill, we interpret purchasing power as including credit, and regard the quantity of money, which is compared with the money work, as made up of all money in circulation plus all credit, this form of the quantity theory is no more acceptable than the other. Its fundamental error still exists in the determination of price by reference, on the money side of the price ratio, mainly to the media of exchange. If this be the assumption, — that everything which acts as a medium of exchange is a part of the quantity of money, — then Mr. Mill is logically compelled to include credit as a medium of exchange (which Walker illogically rejects). But logical reasoning from a false premise will result in a false conclusion. For it is not even true that the price level changes according to the united quantity of "money" and credit. The working of normal credit as a medium of exchange, producing no effect on price, has been already described.[2] But a brief appeal to facts will show the insufficiency of Mr. Mill's conclusion. The enormous growth of the deposit

The addition of credit does not save the quantity theory.

[1] The idea that, after 1850, the increased supply of gold raised prices, necessarily carried with it the belief (in the mind of the quantity theorist) that it must have passed into circulation. Yet, of late, the annual production of gold has been trebled, but prices do not rise accordingly. Why does the gold not go into circulation? In fact, the new gold has acted on theories of prices much as did the deluge of silver from the New World in the sixteenth century. Then, as later, some writers failed to see that only so far as it lowered the value of the standard, did it affect prices, whether it entered into circulation or not.

[2] *Supra*, chap. iv, § 5.

currency furnished by the banks of the United States in the last thirty years has gone on with a pronounced tendency toward lowered prices of goods. From year to year, directly with the increase of production and of goods to be exchanged, this medium of exchange, based upon goods and not upon money, has grown in proportion to the work to be done. This is a perfectly elastic medium of exchange[1] which can come into existence — apart from over-trading and abnormal credit — only because of transactions in goods. Here is a phenomenal increase of "bank credits," a very real addition to the media of exchange, which does not raise — has not, in fact, raised — the price level. The reason for it is not far to seek. Price tables give the quotations for given units of goods (a yard, a bushel, etc.); but with the progress of industry a given capital and labor have produced more units than before, so that while there are more useful goods in existence, each unit can be sold at a lower price. If a cotton-mill doubles its product issuing from the same capital and labor, and halves the price per yard, the money price of the doubled product is no more than before, and requires no more media of exchange to transfer it. But if the increased mass of goods did have an increased value, if the total aggregate wealth of the community did increase, as is well known, even then the increased trade would, by modern credit-devices, create the needed media of exchange (which to Walker is not "money") exactly in proportion to legitimate transactions. Therefore, while Mr. Mill is logically compelled to say that, since credit is a medium of exchange, the quantity of money must include credit in order to make the quantity theory modern, yet his whole argument is aside from the facts of our present commercial life. The refined system of barter created by modern banking has no more effect on the normal prices of goods as expressed in the standard metal than primitive barter had.[2] It is impossible, in my judgment,

[1] Cf. C. F. Dunbar Deposits as Currency, Quar. Jour. Econ. (1887), pp. 401 ff.

[2] It will not do to meet the above point by saying that the increase of trans-

to explain the movement of prices by any theory based on the quantity of the media of exchange.

§ 4. The prices of goods are, of course, the quantities of the standard metal for which they exchange. In trying to arrive at the price level, or the evaluation of goods in the money metal, by regarding the money factor as the actual media of exchange, the quantity theorists have boldly dismissed other factors which affect the value of the money metal. The bimetallic supporters of the quantity theory very strongly urged that the demand for gold in the arts and for jewelry and ornaments had increased the demand for gold, increased its value, and hence tended to lower gold prices. Whatever the statistical data may be worth, the principle on which their argument is based was valid; they were right in claiming that anything which affected the demand (or supply) of gold would, theoretically, have an influence on the value of the standard and hence on prices. Of course, it admits that other things than the quantity of money in circulation affect price, and is a tacit surrender of the quantity theory. The non-monetary demand for the money metal (*e. g.*, gold) is an essential part of the demand, and it can affect the value of gold and gold-prices in the same way that any other demand — such as a monetary demand — can. Whether it will perceptibly change prices or not depends upon the amount and strength of this demand relatively to the total existing stock (or the supply) of gold. If the quantity theory be described as but the rigorous application of the general theory of demand and supply, it ought to take account of the non-monetary demand for the money metal.

Error in neglecting the non-monetary demand.

actions has been so much greater than the increase of the circulation that prices have fallen. That is attempting to prove the quantity theory by assuming its validity. There are, moreover, no statistics to prove that prices have fallen because the "money" (whatever that may mean) in circulation has been insufficient. If gold is meant, the quantity of it has not been insufficient, so far as new production goes.

§ 5. It has been asserted with much dogmatic asperity that the quantity theory should not be attacked statistically, to see if it will explain the facts, because it is only a statement of the general principle of demand and supply in its particular application to money and prices.[1] While inclined to admit the undesirability of an attempt to disprove the law of demand and supply by statistics, I may yet be permitted to show that what is called a demand for goods is not a demand at all, when made synonymous with the quantity of money in circulation; and that such a "demand" does not have the effect attributed to it by the quantity theory of an influence decisive on prices. What is the demand for goods which compared with the supply of goods affects their prices? According to the quantity theory, it is the quantity of "money" (however that may be defined) actually used as an offer for goods; or the media of exchange (including credit according to Mill) by which the goods are in fact transferred. According to General Walker, bank checks and similar devices would have no influence on prices, he believing that prices fixed elsewhere, by actual passage of money from hand to hand, would determine the rate of exchange for the goods transferred by banking devices; that is, even in the mind of General Walker, in these credit operations, price is fixed antecedent to the exchange process. If the few cases in which goods are exchanged only by passage of the money determine the prices for all other goods not so exchanged, then we have demand for goods defined, not as the demand for all goods in the market waiting to be exchanged, but the abbreviated demand for a few goods, for which persons in retail trade or in provincial regions are disposed to present actual money. A demand for goods, in this sense, as a force determining the general price level of a country seems to be quite too attenuated to meet the requirements of the problem. While it is admitted that "demand" for goods may have an influence on their prices, one is not

The quantity theory not a correct statement of demand and supply.

[1] F. A. Walker, Quar. Jour. Econ., July, 1895.

willing to have general demand parodied in the above fashion; nor, as I have already tried to show, is it correct to define the demand for goods as the quantity of the media of exchange by which goods are in fact transferred.

Those who deny the validity of the quantity theory, then, cannot by any stretch of the imagination be regarded as having denied the principle of demand and supply. "They have accepted the fundamental principle, and have rejected the theory, simply because it seemed to them inconsistent with the principle."[1] In the next chapter, in which the constructive theory of prices is presented, it will be found that the principle of demand and supply for both the standard metal and for goods has been fully recognized.

§ 6. In what sense, then, can we speak of prices being determined by demand and supply? It was a general principle laid down by Mr. Mill that the values of goods determined by the laws of value under conditions of barter remained wholly unchanged on the introduction of a monetary *régime;* the only new problem was the relation of goods to money. That is, there are unquestionably some general forces regulating the values of goods (including gold, which is a commodity), that are of general application and not solely applicable to the particular case of value, called price, — which is the value of a money metal relatively to all other goods.

The distinction between particular demand and supply and general demand and supply should be kept in mind. In the first case, any one article may change in value relatively to another, or to all others, because of fluctuations in the supply of, or demand for, that particular thing; and if gold be supposed, for argument, to be unaffected, these changes in value will be accurately recorded in terms of gold (as a common denominator), that is, in the price of this particular article and in the prices of the

Particular demand and supply.

[1] W. C. Mitchell. Quantity Theory and the Value of Money, Jour. Pol.

other goods with which it is compared. In the second case, an increase of demand for all goods can arise only from a general increase of the supply of all goods; general supply and general demand are identical phenomena seen only from different sides.[1] Each producer has more goods to offer as a demand, but each producer has this increased demand only as he has increased his supply.

General demand and supply.

A general demand for all goods cannot economically be separated from a general supply of all goods; and by the relative (*i. e.*, special) play of demand and supply between particular commodities the relative values and prices of each of the goods constituting the general supply are ascertained. How, then, can we speak of a general demand for goods arising from the side of money? That, in truth, is only a phantom demand, a figment of the imagination. The real demand arises from goods, and the fact that the particular value of each article is expressed in money (*i. e.*, by its price) does not affect the character of the demand; nor is the character of the demand influenced by goods being, through a medium of exchange, presented temporarily in terms of a standard money. X is exchanged for money; then the money is given for Y. The real exchange is of X for Y; the mediation of money has no true effect on the process of evaluation between X and Y; it is used simply as a convenience.

General demand based on goods.

The question of price — in spite of the statement that we are dealing with general and not with particular prices — is unmistakably a case of particular demand and supply; the case of the relation between one article chosen as a money standard and all other goods. The theoretical problem is simplicity itself. Anything which can alter the ratio of exchange between the money commodity and all other goods will affect the price level. Then, in studying the value of money, how is it that

Price a case of particular demand and supply.

[1] For this elementary proposition, cf. J. E. Cairnes, Leading Principles of Political Economy, chap. ii.

we are supposed to be concerned only with general prices? The answer is simple: influences operating only on the side of the money commodity, and which have power enough to raise or lower the value of it, will — if forces acting on the side of goods remain unchanged — lower or raise prices, generally. The only important point in such a case is that the disturbing cause of prices is referable to one acting solely on the money commodity itself. This does not oblige us to think that prices can be influenced only by causes affecting the money metal itself; far less does it require us to believe that we must pay attention only to that part of the standard commodity which happens to be used as a medium of exchange.

Error of quantity theory as to demand for money.

The quantity theory errs in wrongly applying the general principles of demand and supply; it sets up a fictitious theory of demand quite independent of the goods on which the demand is based; it uses the symbols of the values exchanged, that is, the media of exchange, as the initial force in determining the relative values of goods and gold. The error in the quantity theory also lies in not properly defining the demand for money. To say that the demand for money is the total mass of goods to be exchanged (allowing for the number of times each article changes hands) is far from correct. The demand for the money commodity arises from both non-monetary and monetary wants; and the monetary demand for it as a medium of exchange has almost no connection whatever with the total mass of transactions; for the amount of the standard commodity required by a community as a medium of exchange varies with their habits of trade, their readiness to economize the use of the valuable standard, their banking development, their general commercial intelligence, their confidence in their fellows, the stability of the government, the prevalence of law and order, the conditions of business, and many such considerations. In fact, since the largest commercial operations and the greatest development of trade are usually found in company with a tendency to save unnecessary risks and expenses, it is practically true that where

the greatest amount of exchanges are going on, there you will find relatively the least quantity of the standard money of the land in actual use as a medium of exchange. Instead of the quantity of standard money needed for exchange rising in any set proportion to the increasing amount of transactions, in modern progressive countries it is usually found that the tendency is rather the other way; and the statesmen who ignorantly advertise their *per capita* circulation as larger than that of other countries are unwittingly publishing to the world the backward condition of their monetary and business development.

§ 7. Lastly, the quantity theory does not explain the facts. Myself once a believer in this Ricardian theory, I was in time led to question its truth because it gave no solution of practical problems of price. From the point of view of economic method, this inefficiency of an accepted dogma to explain the facts would be the first to be established as a ground for discrediting its premises and the reasoning on which it was reached. Since, however, both the premises and the reasoning appeared, in my opinion, unsound, it seemed advisable, for purposes of exposition, to treat them first, and afterwards to discuss the inevitable dissonance between the theory and the facts.

There would not be space in the proper limits of this volume to introduce here a statistical examination of many cases where data can be found upon prices and the quantity of money to show the discrepancy between the theory and experience. Indeed, as has been mentioned by Mr. Marshall,[1] the statistics to support the quantity theory itself are wanting. The day of trustworthy statistics on prices and money has,

[1] While Mr. Marshall thought that we have fairly good statistics in regard to the mass of goods on sale, he believed that we had no statistics whatever upon the average number of times each article changed hands during the year, or upon the average number of times that each coin, or each element of the currency, changes hands during the year. And, also, on the proportion which purchases otherwise than by currency bear to purchases by means of currency, he holds that we have no trustworthy statistics. *Op. cit.*, Q. 629.

indeed, but recently dawned. But taking the available data at hand for the United States, one would have no hesitation in saying that in no single case examined has there been any proportion whatever between the movements of prices and the quantity of the circulation. Certainly, no investigator who might have approached the subject inductively, from a desire to arrive at the principles regulating prices solely by studying the data, could conceivably have arrived at the quantity theory. It has had its origin in pure deduction, unconfirmed by statistical inquiry.

Quantity theory does not explain the facts.

Taking two different tests of the relation of the quantity of the circulation to the level of prices in the United States, — which are typical of many others, — it will be found that the quantity theory and the facts are strangely at variance. If a cause be announced in theory as producing certain effects, and yet, when tested by experience, the effects never follow the supposed cause, certainly no one is under obligation to regard that fictitious arrangement of cause and effect as an established economic principle. To be sure, it will be said that the quantity of money as compared with the money work regulates prices, *other things being equal;* but if the "other things" are so important that changes in the quantity of circulation on a marked scale are not followed by corresponding changes in the price level, then that is equivalent to proving that the "other things" are of more influence than the quantity of money. As will be shown in the following chapter, no one doubts that an increased supply of the standard metal would affect its value, and hence affect prices; but we shall see that the quantity of the metal is but one of several factors affecting price.

The first test we shall take is that of the movement of prices in the United States from 1860 to 1891, during a part of which period (1862–1879) there was a paper standard of prices (an inconvertible paper money).[1] During

[1] The facts are here taken from Miss S. M. Hardy's paper on "The Quantity of Money and Prices, 1860–1891," Jour. Pol. Econ., March, 1895.

relatively short periods, so brief that serious changes in the trade and transactions of the country could not have taken place, we find violent fluctuations of prices out of all correspondence to the increase or decrease in the quantity of the circulation.

Prices in the United States, 1860–1891.

Assuming the volume of the currency in 1860 as 100, the amounts of the currency in subsequent years down to 1900 are expressed in percentages of the amount in 1860; and the line BB in Diagram XVII is drawn to represent the respective changes in the circulation thus derived. With this line expressing the quantity of money in circulation is contrasted another line AA showing the movement of prices in the United States, as appears from the tables published in the Aldrich Senate report. It will be observed that there is no correspondence whatever between the quantity of the circulation and the level of prices.

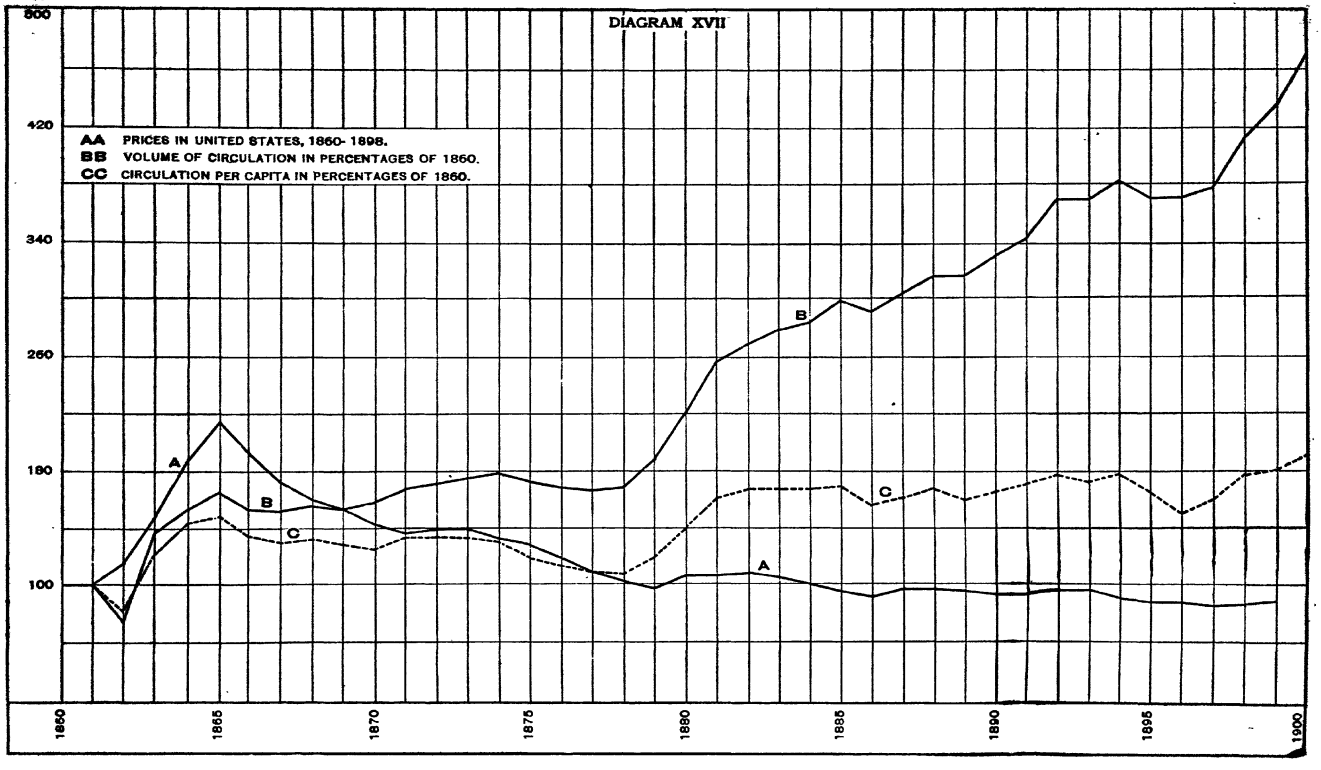
The *per capita* fallacy.

If it be objected, as was done by General Walker,[1] that this study took no account of the growing demand for money caused by an increase of population, it will be seen in the diagram that even the *per capita* circulation (CC) bears no relation whatever to the movement of prices.

On the face of the statistical examination, then, it appears only too plainly that prices seem to have no direct connection with the changes in the quantity of money in circulation. But with justice, it may be claimed by the quantity theorists that it has never been urged that prices fluctuate solely according to the changes in the amount of the circulation, but according to the relation existing between that amount and the mass of transactions. Even if the circulation has increased, and yet a fall of prices has ensued, of course that implies to them an unusual increase in money work; that the fall of prices has been due to a changed proportion between the quantity of money and the work put upon it.

In an inductive examination of the relation of prices to the

[1] Quar. Jour. Econ., July, 1895, pp. 375 ff.


DIAGRAM XVII
AA PRICES IN UNITED STATES, 1860- 1898.
BB VOLUME OF CIRCULATION IN PERCENTAGES OF 1860.
CC CIRCULATION PER CAPITA IN PERCENTAGES OF 1860.
500
420
340
260
180
100
1860
1865
1870
1875
1880
1885
1890
1895
1900
A
B
C
B
C
A

quantity of money in the two cases to be taken up, it is to be remembered that it is impossible to test accurately that one of the factors which, according to the quantity theory, affects prices, — namely, the money work. If the clearing-house returns be taken as a proof of the increase in the amount of goods to be exchanged, — as they certainly are perfect evidence on that point, — these figures forbid all inferences that such an increase of money work constitutes an increasing demand for money as a medium of exchange (except so far as the same percentage of bank resources on a larger amount of deposits requires an absolutely larger sum of specie in reserve). As evidence upon the effect of an increasing demand for money these figures are unfortunately selected; since they are nothing more nor less than the record of the vast amount of transactions (varying from $80,000 to $100,000 millions, or more) performed by the deposit currency as a medium of exchange, without the use of anything more than a small fraction of specie. Instead of being good testimony to show an increased demand for money, they tend to emphasize the enormous proportion of exchanges accomplished by devices which avoid the use of the metal in which the prices of all these goods are expressed.

Amount of money work.

Use of clearings as evidence.

But there is no evidence whatever to show that the money work, or demand for money, has increased out of proportion to the increase in the circulation. On the contrary, the evidence seems to turn the other way. To cover this point, so far as it can be shown statistically, Dr. W. C. Mitchell made a study, from which he reached the following conclusions[1] for the period from 1860 to 1891:

1. The total increase from 1860 to 1891 in the amount of goods to be exchanged has been from two-fold in agriculture to a little less than five-fold in manufactures.

2. The abolition of middlemen, and similar improvements, have distinctly diminished the number

Statistical evidence as to the money work.

[1] Quantity Theory of the Value of Money, Jour. Pol. Econ., March, 1896, p. 164.

of times that the same goods change hands, and lessened the volume of transactions to that extent.

3. Credit deposits have increased eleven times.

4. The "circulation" has increased three and one half times.

5. If there were 100 units of money work in 1860, there were at the most 500 in 1891. In 1860, the circulation formed 63 per cent of the total media of exchange (including the deposit currency); in 1891 it formed 33 per cent. The work performed by "money" in 1860 was 63 per cent of 100 units, or 63 units; in 1891 it was 33 per cent of 500 units, or 165 units. Then the work done by money expressed in units has increased about two and two-thirds times. But the actual money in circulation increased three and one-half times.

Therefore it cannot be said that the decline in the price level from 1860 to 1891 can be assigned to an increase of the work put upon money out of proportion to the increase in the money itself. In any case, whatever the volume of business, the media of exchange ought to, and always will, be expressed in sums equal to the goods they transfer.

Prices and circulation in 1872–1880.

The second test to be given here tells equally against the practical value of the quantity theory. The following table shows the monetary and price changes in the period covering the crisis of 1873:

[Figures in millions; 00,000 omitted.]

Year.	Total Annual Clearings at New York.	Total Credit Deposits in United States.[1]	Private Deposits in National Banks only.	Volume of Circulation.	Prices Index Nos. for year.	
1872	$33,844.3	$738.9	$628.9	$738.3	$138.8	
1873	35,461.0	750.0	640.0	751.8	137.5	
1874	22,855.9	861.3	638 8	776.0	133.0	Depression.
1875	25,061.2	1,166.4	679.4	754.1	127.6	Depression.
1876	21,597.2	1,146.2	666.2	727 6	118 2	Depression.
1877	23,289.2	1,100.4	630.4	722.3	110.9	Depression.
1878	22,508 4	1,081.4	668.4	729.1	101.3	Depression.
1879	25,178.7	1,133.8	736.9	818.6	96.6	
1880	37,182.1	1,389.3	887.9	973.3	106.9	

[1] Cf. Report Comp of Currency, 1883, p. cxxviii, for years since 1874. For other than national banks, these figures for 1872–1874 are not satisfactory.

On the side of money work, the total annual clearings at New York give a fairly good idea of the inevitable relative falling off in the amount of transactions which was to have been expected in the period following a severe commercial crisis. The mass of exchanges during the lowest years of the depression from 1874 to 1878, inclusive, showed a decrease of about one-third. This may, with fairness, be taken as a general indication of the extent to which the general volume of exchanges, of all sorts, decreased. So far as it affords any evidence, the table indicates that the money work put upon the circulation was largely reduced; and this agrees with general personal observations during that period. But now, passing to the other factor, the quantity of money in circulation, we find, as was to have been expected from a knowledge of our monetary history, practically no change, certainly nothing in the nature of a decrease. According to the old quantity theory, an ascertained contraction of the money work, combined with a maintenance of the existing demand for goods in the form of the volume of the circulation, should have produced a rise of prices. Unfortunately for this theory, the last column of the table discloses a fall of prices of about one-fourth. Clearly the quantity theory, on the face of things, gives no explanation of the movements of price in such cases.

Obviously, by those who include credit in the quantity of money, it will be objected that the fall of prices above shown was due to the contraction of credit and the subtraction of "purchasing power" from goods in general. Such a claim, of course, removes the discussion to the action of credit on prices. The only fall in prices due to credit was that arising from the collapse of abnormal, or false, credit, and the return to normal credit. This was a subtraction, not of real, but of fictitious purchasing power due to over-trading. While some violent fluctuations of market price may thus be accounted for, especially in the period of active liquidation, it remains true that normal prices, on which goods can be continuously produced, could

Prices and credit.

not have been permanently affected merely by the operations of credit. The serious fall of prices in the seven years from 1873 to 1880, and the subsequent low level maintained ever since, must have been due to other than temporary causes affecting market prices; the causes must have been such as to affect the permanent and normal values of goods.

§ 8. Whether or not the quantity theory is true, is not merely a question of dialectics. If false, it should not be appealed to as a reason for legislation. For decades — or so long as the money question has been a political issue in the United States — this theory has been assumed as the bed-rock upon which arguments have been based in favor of particular remedies for the ills of the nation. The consequences of that which, in my judgment, is an unproved and false doctrine, may be briefly summarized as follows:

Relation of quantity theory to American beliefs.

1. The prevalent belief of large masses of men that prices may be regulated by increasing or diminishing the quantity of money in circulation. Among those who propose to work through the action of the state, the theory provides a process by which equalization of property between debtors and creditors may be accomplished. In truth, an increase merely of the media of exchange (such as convertible paper, like our greenbacks), which did not change the value and stability of the standard in which prices are expressed, would not affect prices. What many persons have in mind — at least in this country — when they think that an increase of money will raise prices, is probably some action which would depreciate the standard itself, such as the issue of greenbacks during the Civil War, when prices rose so strikingly; but that was a case where inconvertibility had more influence on the value of the standard than the quantity issued.

Equalization of property.

2. Another consequence appears in the belief, embedded in the thinking of many capable men, of the present and past generation, that any contraction of the "currency" means an inevitable fall of prices and general disaster to the business of the country. This opinion

Contraction bogie.

is popularly held, without any attempt to contrast the quantity of the circulation with the amount of transactions (or the money work). Here the two-sided character of the quantity theory is overlooked, and, for all practical purposes, prices are regarded as dependent solely on the one factor, the volume of the circulation. This attitude was so common in the years from 1865 to 1878 that it reversed the former policy of our country on paper money;[1] and its influence is still dominant in the minds of most party leaders.[2] When there dawns on the public the idea that the media of exchange can vary in amount without practically touching the value of the standard at all, and hence without any effect on general prices, we may look forward to a more enlightened policy in regard to our monetary system.

3. From the assumption that a fall of prices would be a disaster, has arisen a common belief that it might be an ideal arrangement, to maintain undisturbed a general level of prices. As a means to the desired end, of course, it is expected that the volume of circulation should be regulated in such a way as to keep prices on the same old level. This proposal for solving the difficulty between debtors and creditors, arising from changes in the standard of prices and contracts, is chargeable with a failure to distinguish between the functions of a medium of exchange and of a standard. In order to maintain a given level of prices, operations would have to be directed upon the standard, and its world value, and not upon the volume of the media of exchange within any country.

Unchanged level of prices.

4. Following the blind acceptance of the quantity theory, there has arisen in the United States an ignorant but widely diffused antagonism to the issues of banks and to the operations of banking institutions. It is believed that legislation, giving banks the right to issue notes, conveys to them a control over the quantity of the circula-

Attitude towards banks.

[1] See the History of the United States Notes, in the Report of the Monetary Commission of 1898 (Indianapolis), pp. 398–444.

[2] This fallacy often takes the form of basing the prosperity of the country on a large *per capita* circulation. As if a more expensive medium of exchange were an advantage.

tion, and thus enables them to raise or depress prices. To be sure, this point of view has been fostered by political demagogues for selfish purposes; but it has got support by frequent quotations from economic authorities who advocate the quantity theory. If the truth were really known, the banks are providing only a medium of exchange (whether they use the deposit or the issue function) which has no perceptible influence on the standard of prices;[1] and if that agency were most highly regarded which adds most to the volume of the media of exchange, then the banks should be the most popular institutions in the country.

[1] The influence of credit given by banks on prices is quite another question. See *supra*, chap. iv.

CHAPTER IX

THE TRUE THEORY OF PRICES

All great advances in science are invariably marked by their tendency towards simplification; although arrived at by a laborious progress through complication and difficulty, their peculiar merit is to present, what was previously confused, in an orderly and simple form, and to render results, attained only by a series of laborious and painful thought, so clear and intelligent, that every one wonders where the difficulty was, and in what the discovery consists. — LORD OVERSTONE, *Remarks on the Management of the Circulation*, p. 61.

§ 1. PRICE being the quantity of the money commodity for which a given article will exchange, and the general level of prices being the quantity for which all the articles quoted will exchange, the constructive problem before us is to state the causes which determine the exchange value of the money commodity relative to one or more goods. Price is not absolute; it is relative; it issues only from a comparison between two or more articles. For convenience, gold will be regarded as the money commodity; since what will be found true in general of one metallic standard of price will be found true of another.

From the definition of price — which is only a particular case of value — it follows that any force whatever which affects either side of the price ratio — either gold or goods — will affect price. As between gold and steel, for example, their exchange value and the price of steel will vary with changes in the demand for, or cost of acquisition of, either gold or steel. We may state all the possible sets of forces affecting the price of any one article like steel as follows: Forces affecting price.

A. On the side of gold:

1) Lowered expense of acquiring, or increased supply of, gold.

2) Decrease in the existing supply of gold (or greater expense of mining).

3) Increased demand for gold.
4) Diminished demand for gold.

B. On the side of steel:

5) Lowered expenses of production (or possible increase of supply under competition).
6) Increased expenses of production, or monopoly.
7) Increased demand for steel (from owners of other goods).
8) Diminished demand for steel (from owners of other goods).

Clearly enough, the price of steel at any time is a resultant of all these eight sets of forces: a lowered expense of acquiring gold, 1), and a lowered expense of producing steel, 5), will operate against each other, the one tending to raise, the other tending to lower, the price of steel. Or, for instance, both 1) and 7) would unite to raise the price; or 3) and 5) would work together to lower the price. At once it may be seen that several possible combinations of opposing and co-operative forces may be conceived. No one would say that the price of steel was due entirely to 2) and 3), that is, to the scarcity of, and increased demand for, gold — at least, no one with an understanding of price would be content with this explanation; since there are several other factors equally important in their effects upon the actual price. In the case of steel, it may probably be that 1), 3), 5), and 7) are all working together to fix the present price of steel. Price, in any one case, is the concrete result of such union of the above forces as the condition of the arts, the needs of the community, the monetary habits of the world, industrial combinations creating monopoly, exhaustion of sources of supply, increase in taxation, and the like, may determine. Circumstances affecting gold itself, steel being supposed constant, may exist which would modify the price of steel; while, on the other hand, gold being constant, incidents touching only the conditions of producing steel, quite irrespective of the movement of gold, may affect the price of steel.

Price the resultant of many forces.

§ 2. In order to clarify the discussion, it may be advisable first to examine carefully the general causes at work determining the value of gold, under the supposition that the forces working on the side of goods are constant. For this purpose it is not necessary to enter into the general theory of value, — on whatever theory the value of gold is explained, the outcome, as regards price, must be ultimately the same. If, with one school, we regard the value of gold as determined by the final utility of the last accretion got from the poorest mine in operation; or if, with another school, we regard the expenses of production at the poorest mine as fixing the value of gold in the long run, — it makes no difference. In either case the direct influence of demand and supply is admitted. The utility school put the chief stress on the subjective character of demand, while the other school emphasize the importance of supply in relation to expenses of production. No matter what the theory of general value, the exchange value of gold with reference to goods is the question with which alone we are concerned.

Case of gold, goods being constant.

The durability of gold and the consequent growth of the existing stock from year to year, and especially since 1850, have made the supply very large as compared with the annual production; hence its value is less easily influenced through rapid changes in supply. And considerable changes in demand can take place without perceptible influence on its value, because the force of demand is dissipated over the very large supply of gold in the world. Consequently, it must always be kept in mind that changes in price due to events influencing gold itself (and not arising from goods) must, in the very nature of things, be extremely slow and gradual in their operation. Violent and rapid changes of price, on the contrary, must, in the very nature of the existing demand and supply of gold, be attributed to causes working on goods and not on gold.[1]

Whenever we think of gold as an element affecting gold prices, it must always be kept in mind that gold is a com-

[1] Cf. *supra*, pp. 36–41.

modity, whose value is governed by general laws, just as is wheat. Gold satisfies one kind of wants, wheat another kind; each has its own utility. When great discoveries of gold are made, and there is a marked addition to the supply in the mining country, the marketable possessions of its people are thereby increased in a way no different in effect than when the soil yields a great harvest of new wheat. The new gold is purchasing power over other things, at home and abroad, just as wheat is; its value at home and abroad is settled in relation to other things in the same general way as is the value of wheat, and by the same general laws of value. If a miner or a country has more gold than is needed for monetary (or non-monetary) purposes, the surplus of it is sold for other things, just as in the case of a surplus of wheat. A mining country sends gold to those other countries which, by reasons arising from the demands of business, need more bank reserves, or more gold as a medium of exchange (this last not being usual in any large amounts, except in case of a change of standard like that of Germany); or if none is needed for monetary purposes, then it goes to the purchasers of plate, of ornaments, and the like. If the supplies of new gold constantly coming forward are vast, there may spring up new demands in some countries which have substituted gold for silver in their system, or a more extended demand in those countries already using gold. If no such new demands arise, if the monetary demand is satiated, then the large new supplies of gold must inevitably result in a fall of its bullion value relatively to other things; for, if not needed for monetary purposes anywhere, its only possible destination is the arts.[1] If a

Gold a commodity like wheat.

[1] T. N. Carver, however, says: "Gold will distribute itself between its two general uses in such proportions that its marginal utility, or value, will be the same in each. . . . If too little gold should for any reason go into circulation and too much into the arts, until people needed coin more than they needed bullion, gold would be sent to the mint in larger quantities until the equilibrium was restored. . . .

"But to admit that is to admit a quantity theory. To admit that the share of gold which goes into the currency is determined automatically by the needs of

stream of water from a hose be turned into a bucket, when the bucket is full, the excess of water will overflow on the ground and spread everywhere; in like manner, the stream of new gold will first flow into the circulation and reserves, if needed there, and all additional supplies will pass into the arts for general use.

Adjustment of gold to monetary and non-monetary uses.

The details of this process of adjustment are not difficult to follow. A large new supply of gold, either in the form of bars or coin, would probably appear first at the counters of public or private banks; the banks would retain only that amount which was needed for reserves by the existing conditions of business. These institutions, or owners of bullion, would have two destinations for the surplus gold not needed for reserves: (1) the circulation (as a medium of exchange), or (2) the arts. (1) If the country already had media of exchange other than gold — such as bank notes, deposit currency, and the like — sufficient to carry on existing transactions, then the injection of the new gold into the channels of trade as a medium of exchange would be resisted by the business habits of the community. If put into circulation, it would not stay there, — any more than did our surplus silver dollar pieces. Hence the surplus gold could not affect prices by being directly offered against goods as a medium of exchange, because it would not necessarily appear in that form. (2) On the other hand, if no more gold were needed in the reserves and the media of exchange, and if it finally went into the arts, the increased supply must there adjust itself to the existing demand in exactly the same way as would that of any other commodity. Gold articles (omitting the labor impressed upon them) would fall relatively to wheat and other goods.[1] Plate formerly priced at fifty dollars, or fifty

business is to admit that the number of units has something to do with the value of each unit." Quar. Jour. Econ., July, 1897, pp. 431–432. To admit that the value of the standard can be influenced by supply is not to admit the usual quantity theory of money. In the ordinary form of the dogma, prices are regulated by a comparison between the money work and the quantity of the media of exchange.

[1] Cf. Loria, *op. cit.*, pp. 13–15.

bushels of wheat, would, for instance, now exchange for only forty bushels of wheat (and the plate would be paid for by a check on a deposit account based on wheat thus coined into means of payment). But if gold plate falls relatively to wheat, so would gold as a standard of prices; since, under free coinage, nothing bars the presentation of plate and bullion to the mint, or the melting up of coins to go into the arts. The plate could have been coined — in round numbers — into fifty gold dollars; so that wheat, owing to the fall in the relative value of gold, would now be priced at a rise of twenty-five per cent. Obviously, such operations are not followed instantly by their results; since some time is needed for the effects to be worked out. It is not at all necessary to appeal to a later step, such as the actual increase of the supply of the media of exchange as compared with transactions, before we can ascertain a fall in the value of gold, as seems to be required by the quantity theory. And yet due importance has been given in our demonstration above to the operation of the law of demand and supply on the value of gold, which is the more influential because the direct effect of expenses of production is masked by the durability of gold.

We may then pass to the slower effects flowing from changes in expenses of production. In the mining regions, moreover, between the newly mined gold and the commodities needed by the miner from the adjacent neighborhood, there is an instant valuation going on, based mainly on the relative expenses of production of gold and of these commodities. Provisions and similar farm products, whose expenses of production have undergone little change, buy a very much greater weight of gold than previously, because the exertion and outlay for obtaining the new gold just there is less relatively to that of the provisions.[1] At the mines and adjacent farms it is easy to compare expenses, and

Evaluation between gold and goods in mining countries.

[1] "The rise in price has been most rapid in commodities produced in the gold countries; having in these, at a single bound, reached its utmost limit — the limit set by the cost of procuring gold." Cairnes, Essays, p. 73.

hence the prices of farm products rise relatively to gold. It usually happens that discoveries of gold are made by miners in isolated places, where, in the beginning, transportation and connection with central markets are not quick and easy. The ability to dig or wash out, with labor and a limited capital, more gold than can be had under existing processes of agriculture by offering farm products for gold in that locality, is only a statement of the changed relation between the expenses of production of farm products and of gold. Then and there more newly mined gold is offered for farm goods than those goods could command before the discovery; that offer is itself a change of price. To be sure, it may be said that this alteration of exchange ratios between goods and gold is due to a change in demand, and not to a fall in the expenses, of producing gold at that spot; but the change in demand is, in reality, due to the fact that the gold miner has a less subjective estimate of gold because it comes to him with less sacrifice as compared with the farm products necessary to his consumption.[1] But even if the new adjustment of value between gold and goods were assignable directly to a changed demand, that explanation still does not require a resort to the quantity theory to show why the prices of farm products rose. The value of the standard metal, therefore, falls, and prices rise, first, in the mining districts, for very obvious reasons which require no resort to the quantity theory. Then, when gold is exported, it goes abroad, not because prices have first risen, but because relative to other things gold is more easily acquired; prices were a result of that fact, not

[1] If, however, the opening of new gold supplies had taken place, even on a very large scale, close to established markets for goods and gold, the adjustment of the exchange value of goods and gold would in the end be the same, although the process would be different. In this case, the world value of gold would be controlling at the mines, and supplies of goods could be had at the usual market quotations. There would, then, be no sudden fall in the value of gold relative to goods, at the mines. If the expenses of producing gold were very low, the miner would obtain differential gains by that fact until in due time the new supplies had lowered the world value of gold. The methods by which this would take place, by gold flowing into the arts if the monetary needs were satisfied, has already been explained.

the cause of the export movement of gold. Gold was exported according to the accepted economic law of comparative costs.

Evaluation in non-mining countries.

In the non-mining country the gold costs what that costs which is given for it. If it was sent from the mining country because its value had fallen there relatively to other goods, evidently the importing country gets it cheaper than before, by giving less of her goods for gold. This is the form in which a fall in the value of gold is naturally adjusted to goods in non-mining countries. The money metal having fallen in value relative to exports in these latter nations, of course prices rose; the rise of prices merely registered the antecedent causes which had their previous effect on the value of the standard. In this case, again, it is not necessary to explain the fundamental change of prices by reference to the quantity of the media of exchange. The change in the value of gold — no matter by what steps it, in fact, spreads over the commercial world — is itself a change in price. It seems quite unnecessary, then, to go through a subsequent process of comparing the media of exchange with the mass of transactions in order to produce a change of prices, or to find the cause of any alteration of prices. The modification of value going on antecedently, for causes existing before the actual record of prices on the dial-plate of trade, was the real price-making process, to which the media of exchange afterwards conform as a matter of course, or as a register of events. If the standard falls or rises in value, of course prices rise or fall; that is what is meant by a fall or rise in the value of the money commodity.

Decrease of supply of gold disregarded.

§ 3. For practical purposes, the value of gold so far as the elements affecting itself are concerned is influenced mainly by its supply and demand. In regard to its supply, it is of no consequence to consider the diminution of the supply: the production since 1850 has more than quadrupled the probable stock in existence before the discoveries in Australia and California, and the annual

production is now about treble what it was twenty years ago.[1] The existing stock having thus, in recent years, become so enormous because of its durability, it would be absurd to speculate about any influence of abrasion, loss, etc., in reducing the world's supply. As to the future increase of supply no one can say: although the most confident prophecies were made in the past by geologists that the production of gold would be restricted, yet the product goes on increasing in an unparalleled way from South Africa, Australia, our Western States, British Columbia, and Alaska. Moreover the cyanide process of reducing ore has cheapened the methods of extracting gold, and has made it profitable to work poorer grades of ore and soil. As regards the practical problem of price, then, the diminution of supply — A, 2) — must be regarded as in abeyance; while the lowered expense of acquiring gold — A, 1) — is the important existing factor under supply.

§ 4. Passing to the demand for gold (still using it as typical of the money metal), it has utility, not only for monetary purposes, but for various uses in the arts. As Mr. Nicholson says:[2] "If gold were no longer used for coinage, it would probably still possess a very high value as a commodity." The non-monetary uses of the precious metals were originally of such importance, they were so generally desired for their own beauty and decorative qualities, that they furnish the chief reasons why these metals have been so generally adopted for monetary purposes; their intrinsic qualities fitted them better than any other articles for use both as a standard, and as a medium of exchange. Their use by dentists, surgeons, and manufacturers; the employment of gold-leaf in gilding books and producing sumptuous architectural effects on domes and interiors; their consumption in the innumerable forms of jewelry, watches,

The non-monetary demand for gold.

[1] The stock available in 1850 is estimated at not less than $2,000,000,000. The production of the last fifty years is, in round numbers, $7,000,000,000. The annual product of the world in 1899 was $306,000,000 as against about $100,000,000 in 1881–1885.

[2] *Op. cit.*, p. 67.

plate, and the like; the accumulations of gold (as well as silver) in hoards, or by the people and potentates of India and the Orient, in the form of idols or of massive vessels and furniture, — are some of the uses for which there is a non-monetary demand.

The other and commonly regarded demand for the precious metals is for monetary uses. When a country establishes gold or silver as a legal standard for contracts, prices will be referable to that metal, and a demand for that metal is thereby created. In this sense only can law in any country create a demand for a given metal: it can determine to which of the precious metals the given demand of a people, be it large or small, shall be directed. But this demand for monetary purposes may be either for maintaining the standard, or for providing a medium of exchange in whole or in part. (1) For the purpose of maintaining the standard, the sums needed to furnish constant tests of the solvency of the various media of exchange other than gold may consist mainly of reserves in banks, or, if the state issues paper money, of reserves in the national treasury. Where the standard is removed from politics and its stability is unquestioned, these reserves may be kept at a minimum; and the media of exchange may be almost entirely provided by contrivances other than the standard metal. In these conditions no very great quantity of gold would be required by a country; and the monetary demand would be at the minimum. This situation is fairly well illustrated by England: having had the gold standard since 1816, there seems to be not the slightest thought of changing it for any other metal; its medium of exchange is largely the deposit currency of banks, and of the Banking Department of the Bank of England; its paper money is provided for by the Issue Department of the same institution, where, in excess of about £16⅔ millions of government bonds, each note is secured by gold, which in general amounts to about £33 millions. Beyond the reserves of the Banking Department, the reserves of private banks (neither of which carry

The monetary demand for gold as a standard.

Illustrated by England.

large sums of gold), and the amount of coin kept for daily use in minor retail transactions, little or no gold is required. The greatest commercial nation of the world, acting as a clearing-house between almost all the countries on the globe, financing foreign public debts and operations in many countries, has a monetary demand for less than $450,000,000 of gold, — an amount which could be supplied by one and a half year's production from the mines. In a modern commercial nation, therefore, the monetary demand for gold is far less than usually supposed, when it is needed mainly for maintaining the standard, and when it itself is little used as a medium of exchange.

(2) In the second case, if gold were also required as a medium of exchange, the demand for it might be very heavy; but that implies a strictly primitive condition of business which nowhere now exists. The reasons for the evolution by which the valuable standard was saved from being used as a medium of exchange have already been given.[1] How much the standard metal will be needed as a medium of exchange by a country will vary with its development and internal conditions. In the United States, under a gold standard, almost no gold is in circulation as a medium of exchange; it is found in the reserves of the treasury and of the banks as a means of maintaining the solvency of United States notes, of bank issues, and of the deposit currency, which form the chief media of exchange[1] (apart from silver and silver certificates). The total amount of the demand for gold in this country is met by about $1,135,000,000, or by less than four years' production of gold at the present annual average rate. This is the combined use, both for preserving the standard and for a medium of exchange; and it is undoubtedly much

Demand for gold as a medium of exchange.

Case of the United States.

[1] See chap. i.

[2] Aug. 1, 1901. Besides the deposit currency, our media of exchange (exclusive of gold) were: silver dollars and silver certificates, $497,000,000; subsidiary silver, $80,000,000; treasury notes of 1890, $45,000,000; United States notes, $332,000,000; and National Bank notes, $346,000,000.

more than is really needed if our system were scientifically ordered.

Demand for gold as a medium of exchange not in proportion to transactions.

The monetary habits of a people, their skill in creating an efficient machinery of exchange at the least possible cost, — so that it shall require no more of the wealth of the country than possible to be invested in a valuable money metal which in itself remains unproductive — will directly influence the country's monetary demand for that metal. To say that it will vary with the amount of exchanging to be done is quite aside from the point; indeed, there seems to be no direct relation between them.[1]

The world's monetary demand.

Having in the last section discussed statistically the world's supply of gold, we should turn now to the world's demand for gold. As to the non-monetary demand, the statistics are so untrustworthy as to require one to avoid exact inferences from them. As to the monetary demand for gold and silver, the data provided by the United States Mint seem to be fairly satisfactory. The total monetary demand for gold in 1901 was $4,906,700,000, and for silver $3,841,100,000. Since the world's stock of gold in 1850 was probably not less than $2,000,000,000, and as the world's production since then has been about $7,000,000,000, the world supply must be no less than $9,000,000,000.[2] Of this only a little more than one-half has been absorbed by the monetary demand of all countries. It is a real statistical difficulty to discover a demand for the remainder. There

[1] Nicholson (*op. cit.*, p. 349) states the causes affecting the demand for gold as coinage to be: (1) Substitution of gold for silver or paper; (2) increase of population and wealth in new countries; (3) same in out-of-the-way parts of old countries; (4) increase of population and trade in great centres of old countries. In the main these causes would operate on retail payments, and would increase the demand for coinage on a small scale, as compared with the mass of wholesale transactions in which coins are seldom if ever used.

[2] Paul Leroy-Beaulieu has recently, in "L'Économiste français," estimated the total stock of gold at $10,000,000,000. My estimate of $2,000,000,000 in 1850 allows the wide margin of $1,300,000,000 for loss and disappearance between 1492 and 1850, in which period the total production was $3,300,000,000.

is no evidence of consumption in the arts which will lead us to believe that more than $2,500,000,000 (or possibly $3,000,000,000) has been taken in the last fifty years by the non-monetary demand. In my judgment, it is very much less. How can the remaining $1,500,000,000 be accounted for? It is impossible to say; but any great public loan is certain to bring forward supplies without derangement of international exchanges. If I were to hazard a guess, I should suggest that it is largely held in the reserves of great financial houses in Europe, and of the many other private bankers the character of whose business does not require them to make public reports of their specie holdings.

As to the change in the world's demand for gold since about 1850, a full treatment must be reserved to another volume.[1] For the purpose in hand, it may be sufficient to recall the reader's attention to the series of monetary events by which gold was substituted for silver in several countries of America, Europe, and Asia.[2] The abundance of gold permitted these nations to take it and give up silver; and the general outcome of this movement is shown in the figures of the monetary demand of the world for gold at the latest report just discussed. At the time of the changes from silver to gold the process attracted a great deal of discussion, — but mainly because of the inevitable decline in the value of the discarded silver. As a matter affecting the value of gold, this new demand must have helped to maintain and steady the value of gold, in the face of the enormous new supply; but beyond this it probably did not go.[3] That it raised the value of gold relatively to goods does not seem to

Substitution of gold for silver as a demand.

[1] Vol. II, Metallic Money.

[2] For a brief general account of these changes, see my "History of Bimetallism in the United States" (4th ed.), pp. 170–206.

[3] If the value of gold tends to fall, because of new discoveries on a great scale, the value of gold ornaments would become cheaper relatively to wheat and other goods, so that there would arise a tendency towards an increased use of gold for non-monetary purposes. If the monetary system could not take up all that is coined, then the overflow into the arts would automatically operate to increase the non-monetary demand more or less as the value tended to fall.

be possible, in view of a supply quite out of proportion to any new demand during the years since 1850.

§ 5. Having now analyzed the forces touching the value of gold, so far as they directly operate on the standard in which the prices of commodities in general are expressed, it will next be possible to study the goods side of the price ratio, under the supposition that gold is constant.

Case of one article, gold being constant.

First, compare a single article, like steel, with the money metal. What determines the price of steel? Nothing other than the forces which determine the value of steel relatively to wheat, or to any other commodity. How can the comparison of steel with gold take place? In the same general way in which steel would be compared with wheat. Particular supply and demand tend to cause the exchange to take place between steel and wheat at a rate in the long run and under competitive conditions, proportioned to their expenses of production (the concrete rewards for the subjective sacrifices of production), with fluctuations above or below this level at any stated time due to demand and supply. Given the value of gold as constant, steel would tend to exchange for that amount of gold which would cover the expenses of production of steel (including interest on the outlay). An increase in any item of the expenses of production — higher wages, higher cost of materials, higher rewards of manager or of capital — would cause a rise of price. Monopoly conditions which increase the item of rewards to capital in the expenses of production, would act in the same way upon the selling price, relatively to gold. On the other hand, the introduction of new machinery, or any device by which the same capital and labor could produce more units of product, would, unless controlled by a complete monopoly, cause a fall in the price of steel per unit (or ton), because it would have lowered the expenses of production for that unit.[1]

[1] The operation can be seen in the following concrete case, showing the expenses of producing 73,780 tons of steel, in the first case, at $30 a ton. By intro-

In practice, when steel is expressed in gold, that quantity of gold is instantly compared (by the price) with the quantity of some other article, say wheat, for which that gold will exchange. In this way it is feasible to ascertain at once whether steel commands a sufficient amount of gold to put steel on an equitable basis of exchange with any other commodity, like wheat, whose expenses of production (or its value, when fluctuating above or below expenses of production through the influence of demand and supply) may be compared with steel.[1] If steel obtains a weight of gold less in proportion than that commanded by other goods, it is at once seen that its price is too low, and the self-interest of the seller raises it to the proper point; if too high, the self-interest of the buyer lowers it. An adjustment of the value of gold, on the one hand, with the value of steel on the other hand, is thus reached on the general principles of value, no matter how many other goods

The price-making process.

ducing new machinery which will add fifty per cent to the number of tons produced, and by getting materials cheaper, various items, in the second case, may be increased, and yet the price per ton may fall to $28.46:

(1) Buildings	$60,000	(2) Buildings	$60,000
Materials	92,800	Materials	137,500
Machinery (wear and tear)	30,000	Machinery	70,000
Taxes	2,500	Taxes	2,500
Insurance	500	Insurance	1,000
Wages (100 men)	17,000	Wages (more men)	19,000
Manager's wages	8,000	Manager's wages	10,000
	$210,800		$300,000
Int., 3 months, 5 per cent	10,540	Int., 3 months, 5 per cent	15,000
73,780 tons, at $30 =	$221,340	110,670 tons, at $28.46 =	$315,000

The effects of various possible changes on the selling price by the introduction of improvements, skilled labor, etc., can easily be seen. The force of added expense in any item of the expenses of production will raise prices.

[1] In case the steel is compared with another article in some non-competing group, so that the levelling effect of expenses of production is not operative, the adjustment reached by reciprocal demand and supply will determine a rate of exchange according to which a similar comparison of prices will be made. The price-making, being held in check by comparisons with other prices, goes on whether values are reached in competitive conditions by reference to expenses of production, or in non-competitive conditions by force of demand and restricted supply.

appear in the market; and the market price of steel expressed in gold is thereby obtained.

Case of both gold and steel as variables.

Then, — passing on to the next stage, — if we suppose gold also to be variable in its value, for causes affecting itself (such as any possible variations in demand and supply), steel, which is also a variable, for causes affecting its own expenses of production, or its demand and supply from day to day, will exchange for gold, at a rate determined by the relative strength of the forces acting on each side.[1] In due course of time, the exchange will take place between gold and steel on this basis. If gold is lowered in cost of acquisition by new discoveries, the price of steel will rise, unless improvements have also lowered the expenses of production of steel as much as would counteract the effect of the cheapening of gold; or the cost of producing steel may have been lowered so exceptionally as to reduce its price in a remarkable way, in spite of the fact that gold has also been greatly cheapened (even as regards labor, or human effort). If, again, gold has been cheapened, and if steel has been monopolized, there will be a tendency on both sides to cause the price of steel to rise.

Ordinary changes of price referable to the commodity.

But, as has been several times emphasized, the change of gold to a lower or higher value needs many years for its operation, and it is necessarily slow and gradual; especially will this hold for the future, because of the present enormous existing stock.[2] Therefore any serious changes in price during short periods of time, in steel or in any single commodity, must

[1] Cf. the illustration of beer and bread by Adam Smith, Wealth of Nations, I, chap. v, p. 14. Also, cf. the following:

"For it must be admitted as fundamental and preliminary, that relative values will be adjusted when they are reckoned in money, just as they would be if money did not interfere." Nicholson, Monetary Problems, p. 350.

[2] "In studying or in prophesying changes in the level of prices, we should, as regards long period oscillations, look mainly though not wholly to the causes primarily affecting the precious metals; whereas these causes may be almost entirely neglected when considering oscillations in prices of shorter period." Leonard Darwin, Journal of Royal Statistical Society, 1899, p. 370.

always be referred to causes affecting the expenses of production of that article, or to causes touching its own demand and supply — quite irrespective of those operating on gold.

The conclusion as to the forces controlling the price in gold of any single article like steel may be graphically expressed in the accompanying figure, in which those acting on the money metal are distinguished from those acting on steel.

The price of steel in gold may be affected by any one of these agencies, the other being constant; or by any combina-

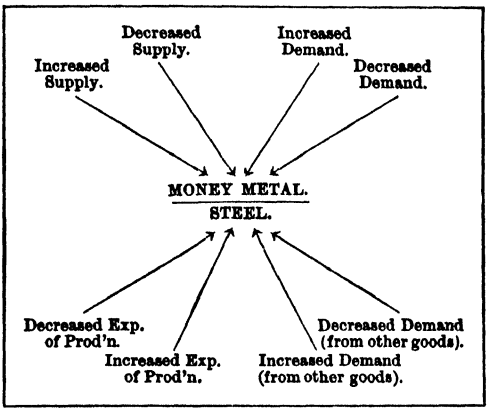


FIG. 1.

tion of them, some acting together, or some opposing each other. To account for the cause of the change of price in steel, one must know the relative strength with which each of these sets of forces is working. In practice, those on the side of money may, for any ordinary period, be assumed to be constant.

In the next figure the same forces are so arranged as to show which of them are working to depress the price and which are working to raise the price; the four above tend to lower, and the four below tend to raise, the price of steel (gold being taken as the money metal).

The resulting movement of the price of steel will be up or

down, according to the relative intensity and power of those below as compared with those above. One single cause

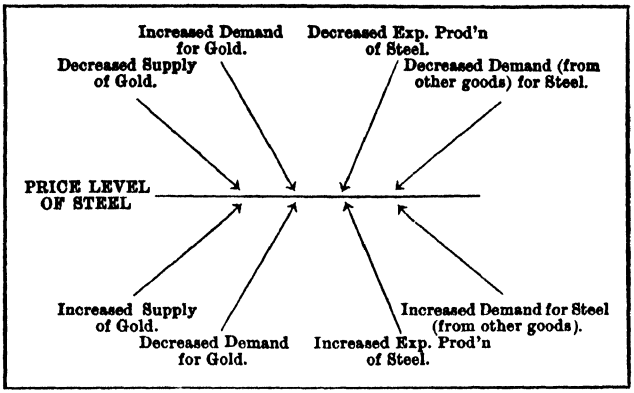


FIG. 2.

above may do more to lower the price than all of those below when combined to raise the price.

§ 6. In the next step of our examination, while regarding gold as constant, let us study the process by which the prices of all goods — or the general price level — instead of a single commodity, are determined.

At the outset we should recall what is meant by the price level, or by "general prices." Of course, in the nature of things, it cannot be an abstraction; it must be a collection of facts. So far as can be imagined, no average of the prices of a number of commodities can be derived in any other possible way than by combining the actual quotations of single commodities.[1] A level of prices can come into existence by no other conceivable process. It is true that some writers have argued as if the level of prices were arrived at by first finding out the amount of exchanging to be done (an impossible statistical

Case of all goods, gold being constant.

[1] "'General Prices,' it may well be said, is but an expression for the sum total of an infinite series of particular prices." Nicholson, Monetary Problems, p. 350.

feat) and then comparing with that the quantity of the media of exchange actually offered against goods. It is not hazarding much to say that no one has ever in fact ascertained the general level of prices in any such way. If it were done, then individual prices would be a result of working from this abstract level of prices to single prices so adjusted that the latter would together equal the general price level. It is only necessary to state such a scheme to see how chimerical and visionary it really is; and yet that is a method which may be claimed logically to follow from the quantity theory. But such a method is inconsistent with the only means of price-making possible under the quantity theory, namely: that the price of a separate article is arrived at only by an actual exchange against gold. As a result of this last process the general price level would then necessarily be a combination of separate price quotations; and the general price level could not have been arrived at by a comparison of all the money work with all the media of exchange.

Meaning of "general prices."

If, however, it be accepted that the level of prices, or general prices, is made up from the actual quotations of single articles, then we are on solid ground. It follows, therefore, that the forces affecting the level of prices are the same as those affecting the prices of single commodities which enter into the resultant. A house made of brick has peculiar characteristics arising from the nature and qualities of the material of which it is constructed, differing in this respect from a house built of wood or sod. Undoubtedly we must seek the forces affecting the general price level of goods among those already analyzed as operating on particular prices; although it will be found that some forces touching particular articles will disappear when we come to consider goods in general.

It is to be remembered that the case of general prices is one of the particular demand and supply of a single money metal as against all other goods. On the side of the money metal anything touching either its supply (ultimately its cost

of acquisition) or its demand will affect its value relatively to every other article. But, on the side of all goods, their values relatively to gold would not, taken as a whole, be altered by the changes of demand for particular goods as directed towards other goods; since, as the value of one article rose relatively to another, that other must have fallen in proportion. Among themselves, the mass of goods might change in their values relatively to each other, without changing the total quantity of all goods which could be purchased by a given weight of gold; although in that case, if gold bought more of one

The case is one of particular supply and demand.

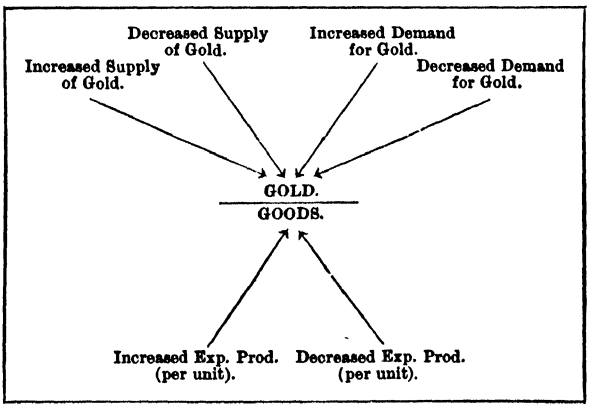


FIG. 3.

thing and less of another, this change might have some social importance. The general price level of gold relatively to goods, therefore, would not be altered by changes in the values of goods relative to each other. This fact necessitates the omission from the forces affecting the goods side in general of the two factors (appearing in the case of a single article) of increased or decreased demand from other goods. The conclusion reached by this reasoning jumps exactly with the general economic principle previously mentioned that general demand and general supply are identical phenomena. Hence of the four factors on the side of goods given in Fig. 1, the only ones left

Demand from other goods omitted.

are: the increased or decreased expenses of production per unit of product, as seen in Fig. 3. The general level of prices, then, supposing that the agencies directly touching gold are constant, is governed by the high or low expenses of production of goods.

This analysis shows perfectly how a great movement in the arts, such as a succession of industrial improvements and discoveries, tending to lower the expense of obtaining a given unit of goods, would act directly on the general level of prices. In my judgment it disposes of the objection that improvements, lowered freights, and the like, could have no influence on general prices.[1] Supposing the demand and supply of the money metal to be unchanged, an improvement which lowers the expenses of producing a given unit of one article, or of all articles, would necessarily affect the general level of prices, and show itself in a lower range of prices; it is impossible that it should not affect prices in this manner — unless the improvement in one article should be counteracted by a rise in some other commodity.

Effect of improvements on prices.

Indeed, the march of invention and mechanical construction, the discoveries in the arts, the introduction of new appliances and the improvement of old ones, in the last thirty or forty years of the nineteenth century, have produced an industrial revolution in the processes of production which has not been equalled in the same century, and consequently in no preceding century in the history of the world. In the scientific and engineering field the importance of this marvellous period has been fully recognized; but in the field of economics and prices its equally great significance seems not to have been fully appreciated. New and labor-saving devices have been introduced, not merely in a few industries, but in all; there is not an article of common use whose production has not been multiplied enormously by the use of special machinery, with the result that each unit has been put forth at a less expense.

The recent industrial revolution.

[1] Cf. Nicholson, Monetary Problems, p. 354.

The stores of the earth, ores, coal, minerals in general, and all the raw materials of manufacture, have been more cheaply supplied by new processes of extraction and manipulation, new inventions, and cheaper transportation; the lowered cost of carriage has spread not only over new continents, but over all oceans; agriculture has felt the force of this progress in really extensive improvements in harvesters, reapers, fertilizers, and the like; manufactures of every kind have been thoroughly revolutionized, so that the cotton-mill and machine-shop of to-day are entirely new in arrangement and in the actual machinery in use; modern methods of applying power are marvellous as compared with the old; in short, the progress of the race in mechanical and scientific methods of directing human labor in the production of our satisfactions is something little short of incredible. The period of the so-called "industrial revolution" at the beginning of the nineteenth century is of inconsiderable moment in comparison with the events of the past few decades.

Lower prices consistent with greater gains by producers.

Emphasis has already been put on the fact that a price quotation relates to a given unit of a commodity (*e. g.*, a yard, a ton, or a bushel). The enormous increase in the production of goods in recent years, the greater number of units of a commodity produced by a given amount of labor and capital and the greater total consumption of the world, are not at all inconsistent with a fall in the prices of the particular unit which appears in price tables. To my mind, instead of being inconsistent, this industrial progress is necessarily connected with the fall in price per unit; but to others the prodigious increase of goods has seemed to put a greater burden on the media of exchange, and hence to cause a fall of prices. If this method of explanation has not already been discredited, it is still possible to show how naturally a vastly greater product of goods might exchange at lower prices per unit.

Still supposing gold to be constant, let us represent, in the following diagram, the amount of each article needed by the community by its height above the horizontal line; and by

the figures under each let us represent the expenses of production for the unit of each product (yard, ton, etc.) :

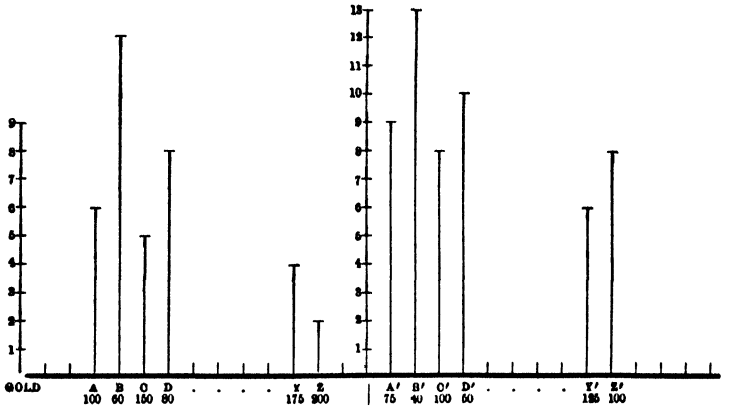


FIG. 4.

The expenses of production of A, B, C, D, . . . Y, and Z, relatively to a given quantity of gold are respectively, per unit of product, 100, 60, 150, 80, . . . 175, and 200. Now, suppose the introduction of improved and cheaper processes in all goods, but not in gold. Each unit of A′, B′, C′, D′, . . . Y′, and Z′ can now be obtained by less sacrifice, represented by a less quantitative expenditure as expressed in each item of the cheapened expenses of production, and then we shall have respectively 75, 40, 100, 50, . . . 125, and 100. The quantities of each article can be produced in greater amount by the same outlay of labor and capital, as shown by the greater height of the lines in the second class (A′, B′, . . . Z′). In the case of A′, the total income of the industry at 75 per unit is greater than A at 100, since 6 units at 100 give a less total than 9 units at 75; hence the exceptional gain of the manufacturer of A′ will result in competition unless he lowers the price per unit. Where improvements have taken place (uncovered by monopoly) the operation of demand and supply will reduce the price per unit of product. Nor, in most cases, would it be necessary even to wait for the actual

increase of supply; for the intelligent manufacturer, working upon orders ahead, will have no reason for heaping up a supply beyond the known demand, and will reduce the price in the competition of obtaining orders. Certainly in such a case it would be absurd to suggest that practical manufacturers in general would, or could, not lower prices throughout the list until they had discovered either that there was less money in general circulation, or that there were more exchanges in general to be made.

No effect of improvements under the quantity theory.

In the case of improved processes of production, under the quantity theory, prices could fall only through the fact of a vastly greater number of goods waiting to be exchanged as compared with a quantity of money not increased in proportion to the increase of goods; that is, improvements could eventually result in lowered prices only by increasing the total mass of goods; to be exchanged or by diminishing the quantity of money in circulation. Carried to its logical consequences, on this interpretation, one is brought to the *reductio ad absurdum* that prices in general cannot fall because of cheaper methods of production, — a fact which, of course, is regularly accepted by men of affairs in all industries.

Media of exchange necessarily equal prices.

The final answer to any objection raised against this point of view by quantity theorists is to be found in the correct understanding, already explained, of the relation of media of exchange to increased exchange work. If there is a greater mass of goods to be exchanged, their prices will, of course, make a totally larger figure, and the figures representing the media by which they must necessarily be transferred, will necessarily amount to as much as the prices of the goods; but that means nothing as to the causes regulating prices, which were at work fixing values before the act of passing them off for any media of exchange took place. In order to shoot with a gun, a gun must be made before the time of the shooting. It does not at all follow that the increased figures of the media of exchange resulting from greater transactions implies that a greater

quantity than before of the money metal (in which prices are expressed) has been actually used as a medium of exchange; it does not follow that the increased supply of goods has created any increased demand for the money metal; nor does it follow that the world value of the money metal has been raised, thereby lowering prices throughout the world. In a community with a well-organized banking system, there is a medium of exchange in the deposit currency which expands exactly in proportion to the work to be done; and, under normal credit, production may increase products to almost any limit, and yet the prices of goods, per unit, may have a steady downward tendency, without any perceptible increase in the cost of acquiring gold.

The operation of abnormal credit, or over-trading, may, as previously explained,[1] affect all prices temporarily, but the process contains within itself the materials for the inevitable reaction to the level of prices permissible under normal credit — making proper allowances for fluctuations during the periods of adjustment and liquidation.

§ 7. Lastly, in the determination of the level of prices expressed in gold, we may pass to the case in which neither gold nor goods are constant, the forces affecting both gold and goods being regarded as subject to all the possible variations which may arise from societary changes. To assign the cause for a change in the price level, knowledge must be had of the relative influence of the following factors in Fig. 5 (p. 360), — those above tending to depress, and those below tending to raise, the general level of prices.

Gold and goods both variables.

Because of the large existing supply of gold, changes in its demand and supply can have no appreciable effect on lowering the level of prices, except after a considerable lapse of time. Hence the active forces, both above and below the line, to be kept in view, in any practical attempt to explain the current level of prices for ordinary periods, would be the

[1] Chap. iv, § 6.

influence of improvements affecting the production of goods,[1] as shown on the right side of the perpendicular, XY. The forces to the left of the perpendicular may be discarded, for all practical purposes, during ordinary periods of time.

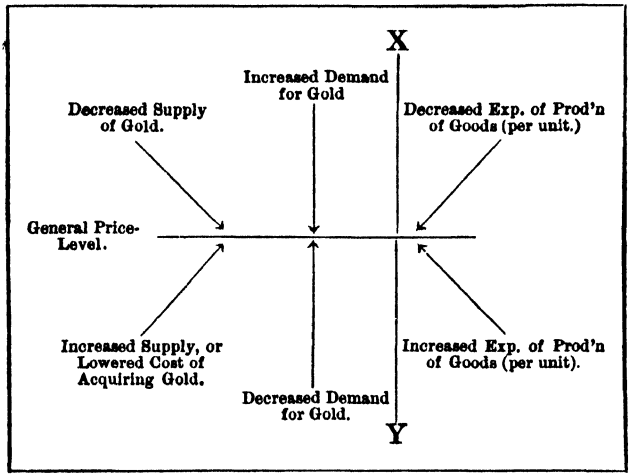


FIG. 5.

Relation of gold to prices since 1850.

In the years since 1850, during which enormous additions have been made to the stock of gold by discoveries of new deposits, we find a set of facts by which our principles can be tested. As against the present day, the existing stock in 1850 was only about one-fourth or one-fifth as large; and the subsequent lowered cost of obtaining gold, as shown in the unprecedented production for the last fifty years, in itself should have worked to raise general prices. The increased demand for gold in substitution for silver tended to counteract the effect of the increased supply, but only in part; the extended use of abnormal credit

[1] The following illustration is quite to the point:

"Wine is not in France an article the oscillations in the price of which can give an idea of the purchasing power of money. The value of wines depends on the crop. In former years we have had years in which the wine growers did not know what to do with their wine. There was so much that it was not worth while to buy casks to store it in. I have seen in the south of France, in Provence, drinking shops in which the consumers drank at the rate of so

in the years before 1873 operated, also, to raise prices quite out of relation to normal expenses of production; and finally, the progress of discovery and mechanical improvements, which was masked by the abnormal conditions before 1873, were after the panic given full play, and, all in all, have proved the most potent factor working on prices by lowering the level even more than the new gold could have raised it. As years went on, the existing stock became rapidly larger in gross amount, and as we approached the end of the nineteenth century, the new production, because of its increasing magnitude, has had a diminishing power to directly raise the price level; and yet during these later years the progress in the arts has gone on unchecked, making its effect more and more apparent as the increasing stock of gold steadied its value and protected it from any aberrations due to demand and supply. The general outcome has been a race between the effects of a lowered cost of obtaining gold, and a lowered expense of producing goods in general, in which the latter has won. Both gold and goods can now be obtained by less human effort than ever before, but goods by even less, relatively, than gold. That gold itself has fallen in cost can be seen by the fact that the effort of ordinary unskilled labor commands more gold now than at any other time in the history of the world.

§ 8. The difference between what I have ventured to call the true theory of prices and the quantity theory is very clear.

much an hour. For 10 sous you might drink during an hour as much as you liked, or as much as you could.

"The railways have allowed these wines to be sent to the north; this has made the fortune of the south.

"After this the phyloxera came and the price of wine went up greatly.

"For 20 years the fluctuations upwards and downwards in the price of wines have been influenced solely by the quantity of the crop and the facility of transport.

"The difference which the alteration in the purchasing power of money has been able to produce can be but insignificant in comparison with the enormous differences produced by other causes." M. Say, Third Report of the Royal Commission on Depression of Trade, p. 361.

Difference between the two theories of price.

The point at issue is partly one of time; since it has seemed to me that in the order of events the evaluation process between goods and the money metal takes place before the comparison could be instituted between the media of exchange (or amount of money in circulation) and the mass of transactions, — as is required by the quantity theory. On the one hand, I have not omitted to state the influence of an increased supply of (or lowered cost of acquiring) gold on its value; but the quantity of gold has, in my opinion, affected prices only through its influence on the value of the standard of prices, and not through its actual presentation as a medium of exchange against goods. The difference in theory, then, centres about the time and manner of the evaluation process between goods and gold. In my exposition, the evaluation goes on antecedent to the exchange operation, since the exchange cannot, philosophically or practically, take place until the rate of exchange has been settled; therefore the amount of the media of exchange offered for the goods must, of course, equal the figure set upon the goods exchanged. The quantity of the media of exchange is a result, not a cause, of the evaluation between gold and goods, and therefore cannot have been the means of fixing prices. On the other hand, according to the quantity theory, the only means of arriving at the evaluation of goods and gold is by the actual use of the "money" (however defined) as a medium of exchange offered directly for goods; in this method the process of evaluation between goods and gold (or "money") is a part of the actual exchange.[1] But if it be seen what the fundamental difference between the two theories is, yet it must be clear that the applications of the two theories to practical problems would lead to widely different courses of action.

[1] Professor Marshall, in describing the effect of an increase of gold upon prices, seems to see the process of evaluation between goods and gold as follows: "I should say it would act at once upon Lombard Street, and make people inclined to lend more; it would swell deposits and book-credits, and so enable people to increase their speculation with borrowed capital; it would, therefore, increase the demand for commodities, and so raise prices" (*op. cit.*, Q. 9641).

The evaluation process which obtains in most writing on money is similar to that contained in this passage of Mill:

> "The whole of the goods being in any case exchanged for the whole of the money which comes into the market to be laid out, they will sell for less or more of it, exactly according as less or more is brought." [1]

The process of evaluation.

The reason, however, why this or any particular amount of money is laid out in the market, lies in the antecedent conditions determining the relative values of goods and gold, as already analyzed. Mill's passage is of a kind which really leaves the whole price question still to be settled. But even if it were granted that price-making could go on only by actual exchanging, the relationship which should be established could be, after all, only that between goods and the standard, — a relationship which should conform, in some measure, to an estimate of the relative values — or, if you prefer, to the relative subjective importance of gold and goods. If one man, either in a mining or a non-mining country, obtains a certain quantum of gold by less effort than formerly, he may set a less high subjective evaluation on it, and therefore may offer it for less than formerly of other goods whose cost of acquisition may remain much as before. The particular theory of value accepted is unimportant in reaching the conclusion as to price.

§ 9. There remains a case in which changes of prices seem difficult of explanation by the quantity theory: the rise of prices after a period of depression when prosperity is returning. Such periods in this country have appeared recently in 1880–1884, and in 1898–1902, when the rise of prices took

Might it not be that credit is not given by Lombard Street except upon evidence of collateral, or the possession of goods, and that this "coining of goods into means of payment" is nothing more than an offer of goods against goods, if normal credit prevails? The new gold is purchasing power; but so is new wheat. Purchasing power is not independent of goods, whether in the form of actual gold or of other goods (leaving out of account the fluctuations of price due to abnormal credit).

[1] Political Economy, Book III, chap. viii, § 2 (II, p. 30).

place throughout almost all industries. The actual increase in the volume of the circulation does not appear to account for the higher level of prices; for with increased production and much the same circulation prices should have fallen.

Such a rise of prices in the period of prosperity just after a depression, is perfectly simple, — being merely a process by which expenses of production are adjusted to improved conditions of business; it is a way of altering the expenses of production, and thus the value of goods relatively to gold. During the time subsequent to a panic, a producer finds the demand slack, and to obtain a market for even a reduced quantity of goods, prices must be lowered to the minimum which will keep the establishment at work: items in expenses of production (see *supra*, p. 349), such as interest and wages, are reduced as far as possible. In order to keep up the organization in these "hard times," the business may be carried on without profit or even at a loss; that is, the price may not be enough to cover the other necessary items and still pay anything for interest or capital. Yet, in anticipation of better days, this may be endured for a time. The price is low because all the items in the expenses are at the minimum consistent with continued operation.

Rise of prices after a depression.

Then, when prosperity begins slowly to return, others begin to produce more goods, and more goods are offered for the needed staples (the demand, of course, being expressed in terms of money). In order to obtain sufficient to provide the usual returns for interest and wages, our producer can then raise his price; this is a method of readjusting the value of his product to other goods and to gold on a normal basis. Such a rise of price acts as a healthy stimulus to production, so long as it does not head off the demand for the usual supply offered at that higher price. Wages and interest payments are again normal, and employment is not difficult to find. In 1897 a great harvest in the United States gave the farmers new purchasing power, and a proportional addition to their demand

Only an adjustment of normal expenses of production.

for other goods; more wheat and corn were carried east, and more goods in return were sent west to the farms; the increased demand for cotton and woollen goods from the side of breadstuffs gave a better price for those manufactures. This process could go on all round the circle of goods, until a readjustment of expenses of production, as expressed in prices, permitted better returns to each agent in production. It would act in general on prices like a general increase in the expenses of production of goods relatively to gold.

The process might, in cases of monopoly, go even further than this. The prices of products might be set so high that under expenses of production might be included a phenomenally high return on capital and outlay, and the price would be a monopoly price. The only question then for the producer is to consider at what point to stop the rise of price so as not to cut down the demand for the amount to be marketed. In the period of returning prosperity, a sudden increase of demand for some articles may have the effect of a temporary monopoly; since the existing producers can raise price to a high point because of a pressing demand during the period before new establishments and an increased supply can be created.

Monopoly prices.

CHAPTER X

PRICES AND THE INTERNATIONAL MOVEMENT OF SPECIE

Since Money is of no other use, than as it is the Thing with which we purchase the Necessaries and Conveniences of Life. — BISHOP FLEETWOOD, *Chronicon preciosum* (1707), p. 61.

§ 1. THE quantity theory of money has been long relied on in the received explanations of international trade and values. If compelled to reject this theory, are we obliged to restate the principles of international economics? While the quantity theory is certainly incorrect, it does not follow, however, that the fundamental principles of international trade and values already accepted are unsound.

International exchange has often afforded a means, in other problems, of disentangling the true from the factitious, because by its very nature it cannot be influenced by local or territorial conditions. The elements of domestic and foreign trade are the same; and the word "international," after all, is only a name for conditions of trade with regions (even within the same country) between which there is no free movement of labor and capital.[1] Therefore the process of price-making in the international field may throw into isolated clearness the agencies which are likely also to be true of price-making in domestic trade.

How are the prices of goods traded in, for instance, by England and the United States determined? If the quantity theory has any universal validity as a general principle, we should be obliged to apply it as follows: the quantity of money offered for goods is to be compared with the amount of transactions (rapidity of circulation both of money and of goods

Prices in international trade according to the quantity theory.

[1] Cf. Cairnes, Leading Principles, p. 306.

being allowed for). What, in this point of view, is the quantity of money which could serve as a demand for the goods passing to and fro between England and America? Is it the quantity of money in England, or that in the United States? Or, is it the amount afloat which is carried back and forth? Of course, no such absurd method of determining prices in international trade has ever been, or could be, attempted. In the international field, of all places, goods (in order to obtain their prices) are not compared with any vague quantity of a medium of exchange; inevitably the comparison is made between the particular goods and some accepted money metal, like gold, in the weight of which the values of goods in different places and countries can be compared. The insufficiency of the quantity theory, when applied to international trade, is too apparent to need statement; yet one may doubt if it is any more absurd to try to compare the mass of goods with the media of exchange in international trade in order to determine their prices, than it is to apply that method of price-making to goods and the media of exchange within a country. Indeed, it is seen by most writers that the relative values of goods between different countries are fixed by reciprocal demand, held in at opposite limits by expenses of production; a seller in one country will not sell below his necessary expenses of production, but he will sell for as much more as the reciprocal demand between foreign and domestic dealers will permit. The relative values of the goods being thus determined, what is the means of evaluation of these international goods in gold? That it is not by comparison with the international media of exchange must be at once admitted; since it is almost universally acknowledged that exports pay for imports, and that it is a barter of goods against goods. In short, the general principles regulative of prices within a country — as already laid down in the last chapter — are practically those which seem to be admitted to be in force in international price-making: given the world value of gold (as determined by the world's demand and supply), goods are expressed in gold in proportion (cost of

carriage apart) to their relative expenses of production, modified by fluctuations of demand and supply.

§ 2. The quantity theory, however, has been used in the study of international values in quite another form than that referred to above. In the historical development of thinking on international trade and the movement of the precious metals, it will be remembered that the usually accepted exposition in general treatises of political economy, with only few exceptions, even to the present day, conforms in the main to the principles laid down by Ricardo (and later expanded by Mill). The theory of foreign exchanges, and the movement of exports and imports, in Ricardo's system were intimately associated with the quantity theory of money; hence the appearance in our latter-day thinking of a doctrine of international prices involving the quantity theory. In brief, the classical theory may be stated as follows:

Classical theory of prices in international trade.

Starting with the trade between England and the United States *in equilibrio*, so that the exports exactly pay for the imports, and so that each country has that part of the money metal in the world which is in the proportion of its transactions to those of other countries, suppose a new export from England to the United States of nitrate (due to discovery). The imports of American goods into England will no longer pay for the exports to the United States; more bills of exchange on the United States are offered for sale in England, and the price of exchange goes down to the shipping point, so that (provided the United States can sell England no additional merchandise, or securities, with which to pay for the new nitrate) specie is imported from the United States to England in an amount sufficient to pay for the new exports. This new supply of the money metal, added to the circulation of England, would, according to the quantity theory, raise the general level of prices in England. But the United States, or any other country, which has bought the new nitrate, would have lost specie, lowered the quantity of her circulation, and conse-

quently suffered a fall in general prices at home. Hence goods, which before would not have been exported from the United States, could now, at the lowered prices, be marketed in England, where all prices have risen. Likewise, high general prices in England will tend to check her exports to the United States, and to other countries. Thus by the initial sending of specie, forces are automatically set in motion which will alter the relation of the amount of the exports and imports of England, until they again pay for each other. In the end, England has more specie than before, and other countries less; prices are slightly higher in England than before, and less in other countries.

§ 3. Since it is our purpose to discuss the theory of prices, we must not be drawn off into any inquiry, no matter how tempting, into international values.

The immediate question is the effect of the addition to, or the subtraction of, specie upon the levels of prices in the trading countries. There are evident difficulties in using the classical theory whenever we try to explain modern conditions. In the first place, the action of the international markets, with telegraphic quotations from every part of the world, precludes the supposition that gold prices could in general remain on a higher level in one country than another (cost of carriage apart) even for a brief time, because, in order to gain the profit, merchants would seize the opportunity to send goods to the markets where prices were high. In the second place, one country is trading with many other countries; and even if that one received much gold, it would probably have come (even through some financial arbitrage centre) from all the countries it traded with which had taken more imports from, than they had exported to, the given country. Thus no fall of prices would take place in the importing countries, of such a nature that the international movement of goods is needed to again bring about equilibrium. In the third place, the theory seems to assume a local value of gold which causes a

Defects in the classical theory.

level of prices within a country different from that abroad, while, in truth, the value of gold is an affair of a world demand and a world supply. In the fourth place, granting a world value of gold in which the comparative prices of goods are expressed, the reason for exporting or importing certain goods depends upon internal conditions affecting expenses of production within a country; that is, it is the relative expenses of production, and comparative prices, of goods within a country, and not the general level of prices, which causes international trade. To be sure, a fall of general prices might be uneven, and thus might bring some new article so low that in comparison with some other it might enter the international market. But, in any case, to create new exports of goods, the change of price must be comparative, and not general; and it must usually be in reverse order to the comparative prices in other countries, so that the direct comparison between the price of a particular commodity desired for export must show an absolutely lower quotation (exceeding cost of carriage) than the same article in the country by which it is imported.[1] Hence the causes

[1] Mr. Nicholson has seen the truth that the readjustment of exports and imports is not produced by the operation of a general rise, or fall, of prices, and shows the *reductio ad absurdum* in regard to this passage of Mill: "It is no sufficient ground of apprehension to the English producers to find that some other country can sell cloth in foreign markets at some particular time a trifle cheaper than they themselves can afford to do in the *existing state of prices* in England. Suppose them to be temporarily unsold, and their exports diminished; the imports will exceed the exports, there will be *a new distribution of the precious metals, prices will fall,* and as all the money expenses of the English producers will be diminished, they will be able (if the case falls short of that stated in the preceding paragraph) again to compete with their rivals." Mill, Book III, chap. xxv, § 1. The italics are Mr. Nicholson's. Of this, Mr. Nicholson says: "That foreign cloth may for a time undersell English cloth, owing to various temporary conditions, every one will admit, and also that the English exporters may again recover their markets when these conditions have passed away; but to suppose that the recovery will take place by a general fall in the level of prices in England through the export of the precious metals in lieu of cloth is to mistake altogether the influence of general and special causes on prices. It is easy to bring the issue to a *reductio ad absurdum*. Suppose at the same time that the price of English cloth is above that of foreign cloth, the English and foreign prices of some other competing export, say linen, are exactly in the

permitting a new export are special and not general; are due to relative expenses of production, or to changes in relative demand and supply, and not to a general change of prices; and they are really antecedent to any movement of specie. In the fifth place, it does not at all follow that the importation of the money metal, which is used as the standard of prices in the importing country (the same which may have sent out the nitrate, or any new export) will pass into use as a medium of exchange, and, by being offered against goods, will raise general prices; and yet, according to the usual statement of the quantity theory, this is the only way in which the imported specie can affect prices.

It is interesting to note that Mr. Nicholson, who, in his special discussions on money, has strongly supported the quantity theory, is quite ready to throw it overboard in his treatment of international values. He finds it impossible to accept the classical explanation of the effect of imported, or exported, gold on prices:

> "It seems necessary, at any rate, to abandon the idea of a fall in general prices abroad; for even supposing the new export is at first paid for in gold, the contraction of the world's currency would be relatively small compared with the increase in that of England.
>
> "But will general prices rise in England until some old exports become too dear? This supposition seems similarly, if not equally, extravagant; for the gold sent on balance will find its way into the banking reserves, and, as Mill himself allows, will so far not affect prices directly.[1]
>
> "Again, general prices in England cannot rise above the general level of gold prices in the commercial world — after allow-

reverse position. In this case a balance will be due from England on account of the lessened export of cloth and to England on account of the lessened export of linen from foreign countries. As these debts will just cancel, no effect on general prices can take place, and the former condition of equilibrium could not be restored in the manner supposed." Nicholson, Principles of Political Economy, II, p. 320.

[1] Is not Mr. Nicholson at variance here with his beliefs elsewhere stated (Monetary Problems, pp. 73, 146), that prices are influenced through the quantity of bank reserves, because, as he says, credit "raises prices just as much as when ready money is offered"?

ing for *quasi*-permanent causes of difference. But on Mill's view a rise in English prices sufficient to check exports and to increase imports would apply to the whole range of both, and for the trade to continue this change in price must be considered permanent. . . .

"The notion that a new export can be obtained continuously only by an operation on the general levels of prices of one country and the rest of the world is suggestive of the primeval simplicity in which roast pig can only be obtained by a continuous series of conflagrations."[1]

Exports and imports independent of the movement of specie.

§ 4. Irrespective of any previous argument as to the soundness of the quantity theory, sufficient reasons have been already mentioned to discredit its adequacy to explain the movement of exports and imports in international trade. In addition, no statistical evidence can be adduced to show that prices are, or have been, raised or lowered by the importation or exportation of gold into or from a country. To say that prices in general will fall in the United States to-day if gold is exported — that imports will thereby be increased, and exports decreased — does not explain the facts of our exports and imports; nor is the movement of gold governed by any such rule as has been indicated in the classical theory. The movement of general prices in the United States is, and has been, quite independent of the importation or exportation of gold. Of course it may be said that gold forms only a part of our media of exchange; but that does not help the case of the quantity theory; for if we have the gold standard, and if gold prices are unaffected by changes in the media of exchange, what, then, has become of the theory?

The most casual examination of statistics will show that the exportation and importation of our standard money metal has had no appreciable effect on the movement of exports and imports of goods. Indeed, one feels compelled to apologize for introducing any evidence on this point. In the case of our trade from 1872 to 1880, gold was not the standard,

[1] Nicholson, Political Economy, II, pp. 288, 289.

hence the export and import of gold as merchandise could have had no importance; nor do the changes in the volume of the "currency" seem to explain the fall of prices:

[00,000 omitted.]

Year.	Volume of Circulation.	Excess of		Annual Index Number of Prices in Paper.	Excess of	
		Exports over Imports Gold.	Imports over Exports Gold.		Exports over Imports Mdse.	Imports over Exports Mdse.
1872	$738.3	$40.8	$. . .	$138.8	$. . .	$182.4
1873	751.8	36.1	. . .	137.5	. . .	119.6
1874	776.0	14.5	. . .	133 0	18.8	. . .
1875	754.1	53.2	. . .	127.6	. . .	19.5
1876	727.6	23.1	. . .	118.2	79.6	. . .
1877	722.3	.3	. . .	110.9	151.1	. . .
1878	729.1	. . .	4.1	101.3	257.8	. . .
1879	818.6	. . .	1.0	96.6	264.6	. . .
1880	973.3	. . .	77.1	106.9	167.6	. . .

But passing to a period in which there was a succession of imports of gold over exports, while gold was the actual standard (after January 1, 1879), it would be expected that the addition of gold should have so raised prices in general that our exports should have diminished, and our imports increased. The imports, it is true, did increase; but their increase was due to the revival of business after a depression; and the rise of prices in these years has been explained on a theory quite unrelated to an enlargement of the circulation.[1]

[00,000 omitted.]

Year.	Excess of Imports of Gold.	Exports of Merchandise.	Imports of Merchandise.	Gold Prices.
1878	$4.1	$694.8	$437.0	99.9
1879	1.0	710.4	445.7	96.6
1880	77.1	835.6	667.9	106.9
1881	97.5	902.3	642.6	105.7
1882	1.7	750.5	724.6	108.5
1883	6.1	823.8	723.1	106.0

[1] Cf. chap. ix, § 9. So far as the general circulation of "money" is concerned, it grew from $729.1 millions in 1878 to $1230.3 millions in 1883. Cf. Jour. Pol. Econ., March, 1895, p. 156.

Moreover, instead of a falling off in the value of exports, there was an advance, although prices in general were higher. Indeed, instead of a restriction of exports because of the imports of gold there was a heavy excess of exports over imports of goods during the whole period.

Statistical evidence wanting.

Taking another period in which there was a succession of exports of gold, one would expect to see, according to the classical theory, such a general fall of prices as should cause an increase of exports, and a diminution of imports, of merchandise. In fact, the exports of 1895 and 1896 are no greater than those of 1890 and 1891; while the imports for those years have not shown much change. The panic of 1893 would alone account for the shrinkage of imports of 1894 and 1895.

[00.000 omitted.]

Year.	Excess of Exports of Gold.	Exports of Merchandise.	Imports of Merchandise.	Prices.[1]
1889	$49.6	$742.4	$745.1	94.2
1890	4.3	857.8	789.3	92.3
1891	68.1	884.5	844.9	92.2
1892	.4	1030.3	827.4	94.9
1893	87.5	847.6	866.4	94.9
1894	4.5	892.1	654.9	87.3
1895	30.1	807.5	731.9	85.2
1896	78.8	882.6	779.7	83.0

Such figures, however, are unsatisfactory, because there are many influences at work to affect the amount of our exports and imports of goods other than the international movement of gold. But, at least, they show that there is no response in the actual facts of the day to the attempt to apply the classical theory. There are, of course, very good reasons for this in the development of our resources, in the cheapening of our goods, the shipment of securities, the payment of ocean freights, the expenditure of travellers, and the

[1] To 1891 from the Aldrich Report; after 1891, from Falkner's Table in the Bulletin of the Department of Labor, p. 263.

items of the general financial account. Hence no legitimate conclusion can be drawn from a table of merchandise movements alone.

§ 5. Without further delay, it may now be permitted to pass to a statement of what, in my judgment, is the true relation between prices and the international movement of gold.

The essential truth in the doctrine of international trade is the recognized fact that imports are paid for by exports; in this sphere it is well understood that goods are exchanged against goods, and that the medium of exchange is merely a subsidiary agency devised for the convenience of the traders. In this respect the character of international exchange does not differ from that of the great body of domestic transactions. In the case of the vast quantity of goods transferred by the deposit currency within a country, the essence of the operation is an exchange of goods against goods, expressed in terms of gold, by a medium of exchange which (under normal credit) has no influence upon the general prices of these goods; in the case of a trade between foreign countries, the essence of the operation is an exchange of goods against goods, also expressed in terms of a given weight of gold, and the medium of exchange employed has likewise no influence upon the general prices of the goods. But in the latter case, as a necessary result of the nature of the trade, since it is carried on over considerable distances instead of within a given financial centre, the medium of exchange employed is the bill of exchange, instead of the check and deposit system. Distance — or the conditions known as "international" — creates a reason for the use of the bill of exchange, which differs in form and practical operation, but not in essence, from such a medium as a deposit currency. Therefore the influence of each on prices in two different fields of exchange is essentially the same.

The medium of exchange has no influence on international prices.

In neither case is there often a necessity in any one sale, or even for great masses of transactions, for passing the actual

standard metal as a medium of exchange. To an American house its exports are credits, while the goods it imports are debits; and to the aggregate of our people our exports of goods are credits offset against our imports which are debits. Gold may be required only in settling balances; but, as we shall see, not even the balances need be paid in gold. The same words might be used of goods bought and sold by the deposit currency. In the field of international trade, it must, therefore, be evident to the most superficial observer that prices are not fixed by comparing the goods which are exchanged — or the money work — with all the "money" offered for the goods (after the way of the quantity theory); although supposedly paid for in each case by an order on "money," the real payment for our exports is found in our imports. The money is not usually, or often, passed, even though each trader, on the face of things, sells or buys for "money," and although his goods are expressed in terms of "money."

Exports pay for imports.

Through the use of bills of exchange it is not necessary that the international accounts should evenly balance at any given time; for a balance in favor of one house or one country may soon be changed into a balance in favor of the other. If A in London receives from B in New York a cargo of wheat valued at $10,000, later A may be sending to B machinery valued at $12,000; then a balance of $2000 is due to A. But, meanwhile, B may have sent a cargo of raw cotton to A worth $50,000; then the balance is reversed. In such trading as this, specie is not sent back and forth for each shipment; the whole account is kept open and continued. The practical means of maintaining this continuity is by means of bills of exchange. For the first item, B has the right to draw on A for $10,000 in London; but when he received the $12,000 of machinery from A, B can assign to A the $10,000 coming to him in London as part payment (thus owing only the balance of $2000). This assignment, when put into words, is a bill of exchange: it directs the buyer of the wheat (who-

International accounts in merchandise do not balance.

ever he may be) to pay $10,000 (or its equivalent in English gold) to A (or to any name, as the case may be), and charge it as an offset against B's debt to A. By this old and simple device, a part of the evolution by which the valuable standard metal has been saved from risk as a medium of exchange, gold is not sent across the Atlantic.[1]

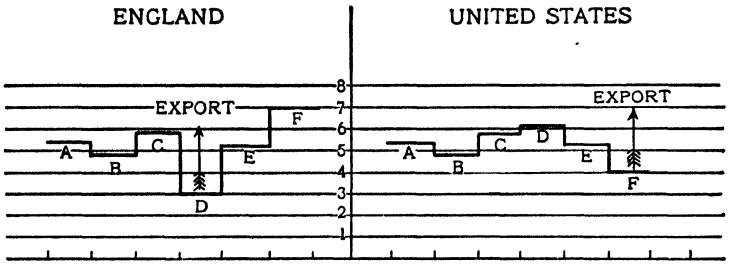
Movement of specie a result, not a cause, of the trade.

Foreign trade is, of course, not carried on only between two persons in London and New York, nor only between the United States and England, but between a great number of houses in the United States and houses in all parts of the world. The accounting, however, remains the same. The transactions of the many houses in London trading with the many in New York are all balanced against each other through the institutions that deal in bills of exchange. So of all the trade between the United States and Great Britain, or between the United States and any other nation. Finally, through common financial centres, such as London, the claims of buyers and sellers of good repute in various nations are offset against each other. Therefore, so far as the merchandise account is concerned, it is evident that the existence of a balance is the consequence of the difference in the value of exports and imports; and since only the balances, under any circumstances, need be transmitted in gold, it becomes perfectly clear that the movement of gold is a result, not the cause, of the movement of goods in international trade. While this is but a simple statement of patent facts, it is to be observed that this is not the sequence of events set down in the quantity theory, since that theory teaches that goods move after the change in the quantity of the circulation within a country has affected prices.

§ 6. The movement of goods to and from a country, moreover, is due to influences affecting particular prices of goods,

[1] Of course, the same general process obtains in settling accounts between cities within the same country, such as New York and Chicago, or New York and New Orleans.

and not to those affecting general prices. In the subjoined diagram, on a scale of prices expressed in gold on the perpendicular line, let the broken lines indicate the general level of prices in England and the United States (leaving out cost of carriage for convenience). The commodities A, B, C, and E have the same prices in both countries, and are therefore not traded in; but suppose that commodity D has



for a time a price in gold of 3 in England, based on relative expenses of production to other English goods, while in the United States it bears a price in gold of 6, having high expenses of production relatively to other American goods. Hence commodity D will be exported to the United States. Similarly, in the United States, suppose commodity F bears a price in gold of 4, due to relatively less expenses of production than other American goods, while in England it bears a price of 7, relatively to other English goods. Then, commodity F can be exported from the United States to England; and a trade can go on between the two countries in D and F.

Goods move because of comparative prices.

If gold is sent at all, it is sent to pay for balances. The originating cause of the exports in both countries was a valuation in gold of goods relatively to each other, based in general on relative expenses of production, and demand and supply, within each country. The cause of the international movement of goods was the difference in comparative costs as expressed in comparative prices within each country; while the exact reverse

was going on in the other of the two countries, so that a direct comparison of prices between the two countries allowed a profit on the trade. The shipment of gold, if any, was a consequence, not a cause, of the trade; and the prices giving rise to a trade were not due to the movement of the gold.

If a general fall of prices took place in England due to a change in the world's value of gold, they would fall similarly in the United States, and for the same reasons; relative prices in each country would remain exactly the same, — unless the change, in some manner, altered relative expenses of production, — and there would be no reason for any new exports or new imports.

Gold cannot have different value in two countries long enough to affect prices.

Evidently, the classical theory counted on a change of all prices in England in such a manner that the whole English level would be, for a time, higher or lower than the general level in the United States, and would, in this manner, occasion new exports or new imports. This position, then, is based on the idea that gold can have a different value in one country than it has in another country; and that this difference is sufficient to cause a change in general prices. But such a condition of affairs would not necessarily permit a profitable trade. If prices in general fell one-half in England, and if they remained unchanged in the United States, there would be no profit in sending commodity B, for example, to America, provided the return cargo was in goods (such as A).[1] Of course, if England will take no goods, but demands gold, England will gain the difference in price between the two countries.

In this latter case an enormous premium would exist on shipments of merchandise only from England to the United States, and it would wholly stop goods from leaving the

[1] That is, 100 B formerly priced at 480, is now 240; and A is now one-half of 550, or 275. Carry 100 B to America where it sells for 480, and it would buy there only $\frac{4}{5}$ of A, or about 85. Take this 85 of A back to England where it will be worth only 233.75, or less than 240, the price of the 100 B, which was exported.

United States for England. Such an extreme case shows how absurd it must be to reason on the supposition that gold prices can maintain a different level in different countries (cost of transportation and ordinary profit apart). The whole business world on both continents is always and actively at work to prevent any appreciable differences in the level of gold prices between commercial nations. A rise of price of any commodity due to local causes (such as deficient harvests, war, etc.) is instantly met by importations from other countries; indeed the actual event is more often discounted by shipments of goods.

The standard often not the medium of exchange.

A century or so ago, or even now among existing nations having no rapid communication with commercial countries — if there are any such — perhaps prices might, unknown to traders, remain at different levels in different countries. In that case, if gold were also the sole medium of exchange, and if there were no free coinage, then possibly the level of prices might be raised or lowered in these detached and remote nations by the addition or subtraction of gold in international trade. But that would throw no light on our problem of to-day. The money which is the standard is little used among us as the actual medium of exchange; and in these days the movement of the standard metal from place to place does not necessarily change its world value; its going in or out of a country may not practically touch the usual media of exchange, other than gold, by which goods within any country are transferred. So that, if gold were to move from one country to another, it does not follow that prices would be affected; certainly not, if prices must depend — as in the quantity theory — on the quantity of the media of exchange.

Different levels of prices corrected by shipment of goods.

Finally, it is not conceivable that a different level of gold prices (supposing such a thing possible) in two modern commercial countries would be brought to a common level by the movement of gold from the place of high to the place of low prices. The competition between trading countries, as between different parts of

the same country, being exceedingly keen, merchants in the leading centres would send the goods themselves to the spot where high prices existed, and by a quick increase of the supply of goods they would reduce prices in the country whose level was artificially high. A situation in which it is found that only gold can be exported is almost inconceivable; for prices would at once fall by competition of goods with goods to a normal international level (allowing for differences due to cost of carriage, etc.) and there would be no exceptional profit in sending gold. In fact, in any reasonable case, an analysis inevitably brings us back to the exchange of goods against goods as the normal condition of all trade.

§ 7. Thus far the discussion of the movement of gold and its effect on prices has proceeded on the supposition that exports and imports consisted only of merchandise. In actual fact, there never is an equilibrium in any country between the exports and imports of goods. Goods are not the only things of value exported and imported, which can be used as credits and debits in international accounting. Securities, public and private, are constantly being sent to and from the United States and Europe in enormous sums. These securities form the basis of bills of exchange exactly as if goods were shipped. Hence a large excess of exports from the United States may be covered by an unknown shipment of securities from Europe to us; and by the bills of exchange the claims are offset so that no gold may be sent either way. In this case, again, the transfer of gold depends upon the previous movement of goods and securities. It is not the transmission of gold which first starts the exports or imports either of goods or securities.

Besides securities, the sums due by Americans for freights, the amounts to be paid on travellers' letters of credit, are offsets against our exports in all forms; and if we lend to foreigners, or buy their securities, we may be drawing only against the credits due us from our exports of goods. All our exports of goods plus our exports of

The financial account.

securities or any form of obligations due to us, on the one hand, are to be offset against all our imports of goods, plus our imports of securities, etc., before it can be ascertained whether a balance of gold is due to or from us; and even then the actual balances may not be sent in gold. So that the effect of a movement of gold upon prices in these days is practically *nil*. In fact, it has become clear, by the logic of events, that the shipments of gold between commercial countries has little or nothing to do with the level of prices of merchandise in any one country.

Rate of interest and the movement of specie.

§ 8. The reason why balances in favor of a country may not be paid in gold is due to the possibility of investing those balances at a higher rate of interest in a foreign country than can be obtained at home. The relative rates of interest have an influence even wider than that upon the movement of balances. It is the rate of interest upon sound international securities, as well as the rate in the loan market, which determines whether credits due, for instance, to the United States shall be left abroad or brought home in the form of goods or specie. The general accounting in foreign trade must include the operations of loans, and the movement of capital for investment from one country to another. Indeed, the rate of interest is behind the movement of securities mentioned above. The purchase of securities is, of course, one form of investing capital. Therefore, in determining the causes affecting prices and the movement of gold in international trade, it must be kept in mind that the relative rates of interest in the trading countries will influence the passage of loanable capital to and fro, thereby acting as a factor in adjusting merchandise credits and debits, and seriously affecting the transmission of gold. Instead of gold being the originating cause of new exports and imports, as once generally held, it is the very last thing to move; and even then merchandise balances may be entirely reversed by changes in the rates of interest in New York or foreign centres which

may cause capital to flow from the creditor to the debtor country. The recognition of the force exerted by the rate of interest on the movement of loanable capital gives the final *coup de grace* to the old theory, which based its change of general prices upon the international movement of specie. The order of events is quite the other way: relative prices cause exports and imports of goods; and the shipment of gold is not necessarily made even to cover balances of merchandise. If gold moves, it goes not merely because of the account in goods and securities, but of the investment of international capital. What Mr. Mill saw dimly in his day is now well understood.[1]

In the seven years, 1894–1900, the total excess of our exports over imports of goods was $2391.7 millions; and yet, in the first three years, we also exported $113.4 millions of gold.

[00,000 omitted.]

	Total Exports, Merchandise.	Total Imports, Merchandise.	Excess of Exports over Imports, Merchandise.
1894	$892.1	$654.9	$237.2
1895	807.5	731.9	75 6
1896	882.6	779.7	102.9
1897	1,050.9	764.7	286.3
1898	1,231.5	616.0	615.4
1899	1,227.0	697.2	529.8
1900	1,394.4	849.9	544.5
Total	$7,486.0	$5,094.3	$2,391.7

In 1897–1899 we imported $200.9 millions of gold. We had sold goods and securities for which other countries must pay us; they had bought of us more goods than we had bought of them by about $1,431.5 millions. We had the choice of realizing on our foreign credit either in goods, securities, or gold. The reason why some gold was shipped

[1] "It is a fact now beginning to be recognized that the passage of the precious metals from country to country is determined much more than was formerly supposed, by the state of the loan market in different countries, and much less by the state of prices." B. III, chap. viii, § 4.

to us in 1897–1899 was that at the prices set by foreigners on their goods and securities we did not care to purchase more than we did; and the balance was paid in gold. If foreigners had offered their securities (or American securities held by foreign investors) cheaper, that is, if they had been ready to pay a higher rate of interest, our investors might have bought more securities abroad. In this way it would have been decided by us to leave at interest in Europe balances due us, instead of asking for gold. On the other side, foreigners preferred to send us the gold rather than to pay the rates we exacted in bargaining for goods or investments. Our excess of credits over debits allowed us to buy foreign goods, securities, or gold, according to our preferences; and we preferred gold. In other years we evidently chose differently.

EXCESS OF GOLD AND SILVER EXPORTS AND IMPORTS.

[00,000 omitted.]

	GOLD.		SILVER.	TOTAL GOLD AND SILVER.	
	Excess of Exports.	Excess of Imports.	Excess of Exports.	Exports.	Imports.
1894	$4.5	....	$37.2	$41.7	....
1895	30.1	....	27.1	57.2	....
1896	78.8	....	31.8	110.6	....
1897	....	$44.6	31.4	....	$13 2
1898	....	104.9	24.2	....	80.7
1899	....	51.4	25.6	....	25.8
1900	3.7	....	21.4	25.1	....
Total	$117.1	$200.9	$198.7	$234.6	$119.7

Movement of capital.

The rate of interest at home and abroad, moreover, acts to regulate the flow of gold before it can appear to an excess in the reserves of banks. The imported gold first passes into the banks, we will say, of New York. The former proportion of reserves to immediate liabilities is altered; and if the banks wish to make use of the new gold as reserves, they might, probably by lowering the rate of discount, increase their loans. On the other hand, in the foreign

banks from which the gold came (say London) the efflux of gold may have raised their rate of interest, for exactly opposite reasons. If the London rate of interest rose, securities bearing a fixed rate of interest would, obviously, tend to fall. In due course of time American investors would find that low rates of interest and high prices of securities in New York were contrasted with high rates of interest and low prices of securities in London. There would thus arise among Americans having foreign credits a tendency to increase loans or buy securities in London; and an equilibrium between credits and debits would be brought about without a further movement of gold.[1] In this fashion the banking and business public of the United States would discover how much gold was needed, and when that amount was reached, at any particular moment, the flow of gold to this country would cease automatically. By the same machinery another country, like England, might obtain an increased supply of gold when needed.

Between great financial centres, such as Paris, Berlin, London, and New York, as already described, a distribution of capital is constantly going on through the machinery provided by the loan market and the rate of interest. Assuming an agreement to transmit a large capital, does it go in the form of goods, securities, or gold? The actual process may be seen by the following illustrations: (A) Suppose the capital is to be moved from London

Movement of capital in gold.

[1] After writing the above, I found the following statement in the financial correspondence from London (New York Evening Post, Aug. 29, 1901):

"As for America, it is now believed in London that the ordinary trade balances in your favor this autumn will be again very large.

"But as to a heavy gold movement in your direction, there is a good deal of uncertainty. It must not be overlooked that the increasing aggressiveness of American capitalists in our industries points to the probability of increased floating balances held for your credit here. As between this influence and the actual credits on merchandise account, the New York money market may be the deciding influence. Therefore the course of your money rates is being watched more closely even than the monthly export balances. If money at New York remains at its present easy figures, it is the rather general belief that you will not take gold."

to New York. If the merchandise account is such as to give an excess of claims on gold in New York to London, — that is, if American imports have exceeded American exports, — there is an urgent demand in New York for bills on London, and the price of exchange has risen nearly to the gold-exporting point; then the capital going to New York for investment is sent by transferring to New York London's claims on gold in New York through bills of exchange. The operation is that of simply leaving in New York the gold which would otherwise have been shipped to London. (B) Again, suppose the capital is to be moved from New York to London. If the merchandise account is such as to give to New York an excess of claims on gold in London; that is, if American exports exceed the imports, in New York the supply of bills on London is large, exchange is low, or near the gold-importing point; then through bills of exchange New York transfers the capital to London by simply leaving in London the gold it would otherwise have withdrawn. (C) If the capital were to be moved from London to New York, and if New York still had an excess of claims on London, as in the last case, London would be obliged to meet not only its trade debit but also that for the capital to be transmitted. This would probably be met by an exportation of gold from England to the United States over a considerable period of time, until the obligations were cancelled. The movement of capital, then, in the form of loans or securities, only adds a factor in the general financial account to those already there which are together working to decide whether gold shall be sent or not.

Gold, consequently, may be sent to cover a simple trade-balance. Or, when capital moves for investment, in obedience to the rate of interest, an effect is produced on the financial account, including credits and debits not only for goods, but for all financial operations, and gold will be sent according to the final outcome of the account. Gold does not move in any such way as to produce a general change of prices.

§ 9. It may be said[1] that, instead of affecting prices through actually entering the circulation, an influx of gold, in the modern banking-system, would affect prices through raising bank reserves, and expanding the purchasing power which is offered for goods. To this it may be replied that, in legitimate banking, loans are made because of satisfactory collateral or actual transfers of goods, and not merely because reserves are high. To be sure, if reserves rise, rates of interest will fall and new loans are possible; but merely because a bank can loan, it does not follow that it does loan. Loans are the evidences of transactions in property and goods; and only enough reserves are kept properly and economically to transfer these goods and property, under the penalty that, if the bank errs in valuing the security, the bank loses. If gold is pouring in beyond the needs of banking safety, the banks get rid of it, just as of any other asset which does not pay a return. If not needed in the reserves, to which it first flows, then — if not wanted for coins — it inevitably goes into the bullion market. The imported gold first passes into the banks, and only as much as is needed for legitimate business is retained. Having a value in and for itself, it can be disposed of as easily as any other form of property. Gold in excess of business needs, it must be remembered, is a non-interest-bearing asset.[2]

Effect on prices of gold in bank reserves.

The existing stock of gold (about $9,000,000,000 or $10,000,000,000, of which less than $5,000,000,000 is used in the monetary systems of the world) is now so large that no restrictions on legitimate bank discounts can be assigned to a scanty world's supply of gold for reserves.

[1] "If a country finds its banking reserve getting low, it seeks to 'correct' the exchanges by raising the rate of discount. This relative rise attracts gold directly and indirectly tends to lower prices by checking advances and thus so far stimulates exports and diminishes imports. It is by its effects on the banking reserves that the passage of gold from one country to another has its principal influence on foreign trade — and it is only considerable in exceptional circumstances." Nicholson, Political Economy, II, p. 292.

[2] Cf. Otto Arendt, *supra*, chap. vii, p. 301.

When the war in the Transvaal broke out in 1899, it was supposed by some that the supplies of gold for the reserves of European banks would be curtailed. Two years later the American reserves had increased by $150,000,000; those of the Bank of England by $18,000,000; the Bank of France by $100,000,000; the Bank of Austria-Hungary by $43,000,000. The Bank of Russia, for special reasons, alone had lost gold. This outcome was not surprising. The explanation is to be found in the vast supply of gold not employed in the known circulation of all countries (nor in the arts), and held by institutions, or financial houses, not obliged to make public reports of their holdings of gold.

§ 10. The rate of interest, the quantity of bank reserves, the price of exchange, merely form the present-day machinery throughout the commercial world by which gold is distributed to each country in the proportion of its needs of all kinds, monetary and non-monetary. The movement of gold follows, and does not precede the events which determine the course of international trade;[1] and hence the shipment does not, in fact, raise or lower general prices so that new exports and imports appear to restore equilibrium.

Prices changed through changes in value of gold.

This ebb and flow of gold from one country to another does not affect the fundamental forces regulating the prices of products. In all cases, gold prices can be changed only by changing the relative values of goods and gold. A variation in prices from causes affecting gold itself can take place only through such events as may modify its value throughout the world, — by alterations in the world's supply of, or the world's demand for, gold. A mere rearrangement of the existing stock of gold by transfer from one place of storage to another would not, unless accompanied by a greater total demand than before, be sufficient to change the world value of gold. If

[1] "The amount of gold sent by way of balance depends on the excess of the exports over the imports and thus follows, and does not determine, the course of trade." Nicholson, Political Economy, II, p. 292.

no increased amount of gold were needed in the annual transfers of goods in international trade, the shifting back and forth in payment of balances would not raise its value; that would follow only from a totally larger demand for such trade uses, as compared with the world's supply. The arrival of a gold balance in any one commercial country no more lowers the world value of gold in the markets of that country than would the price of the existing supply of wheat be lowered if one of the places of storing wheat should be changed from Chicago to Buffalo; for if the existing demand for wheat and the existing supply of wheat remain unchanged, it is only a matter of convenience where it is stored. If the quantity of gold in a country be increased without changing its world demand and supply, it would not produce any effect on the value of gold; it would not affect the value of standard in which prices are expressed, and hence it would not directly modify the general price level in that country.

Moreover, as has been clearly proved by the long experience of England and the United States, the media of exchange by which goods are actually transferred within a country demand little, if any, gold, except for banking reserves. The fact is that the volume of the media of exchange necessarily increases as the transactions out of which such media arise increase; and it is equally true that great variations in the volume of the media of exchange may take place without producing any perceptible effect on the quantity of the standard money metal used in domestic or foreign trade. But, on the other hand, the process of valuing goods in terms of gold does not in itself require more of the standard metal. Unless changes in the volume of the "circulation" in any one country are such as to produce an effect on the world's value of the metal in which prices in the great trading nations are expressed, it is inconceivable that the level of prices in any one country should be changed.[1]

[1] The same general principles regulating the movement of gold and the level of prices between different countries apply equally to the movement of money and prices between different parts of the same country. Cf. Report Monetary Commission, 1898, §§ 76, 77.

§ 11. It might be said, however, that there could be a temporary change in the value of gold in one country, due to violent trade convulsions, which did not extend to other countries; and that the value of gold would be different for a time in that country from its world value. If so, prices would be for a period elevated or depressed, and gold would be moved to restore the equilibrium. Could there be such a temporary scarcity of gold in one country? A case in point may be cited, in the history of the panic of 1893 in the United States, when there existed what was called a "money famine," and when gold was imported.

Temporary scarcity of money.

Such a situation would, even before the event, show itself in the rate of interest, and gold could be imported within a week. Granting the temporary scarcity of gold in such an emergency, the time required for the shipment of gold could not be long enough to change the general level of prices; in truth, it would be usually found that prices had fallen before the money famine disclosed itself. This exceptionally high value set on gold, in 1893, was due to temporary business and banking conditions, and to the liquidation of obligations. In this case the sudden demand for gold was disassociated from the movement of prices; the increased estimate put on gold in the panic came after, and so could not have been the cause of, a previous fall of prices.

To be sure, a fictitious rise of prices due to abnormal credit might temporarily give to gold a lower value within a country than it possessed elsewhere in the world; but these conditions bring their own overturn in such a vengeful fashion as to show that it is at variance with the natural principles of price-making. As elsewhere explained, such a rise of prices is not due to an increased quantity of the standard metal, but to the fiction of abnormal credit.

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CHAPTER XI

AMOUNT OF MONEY NEEDED BY A COUNTRY

The complaints of particular persons arise, not from a deficiency of money or counters in circulation; but from their own want of property, want of skill, address, or opportunity of getting more money; or perhaps only for want of frugality, in spending more than their income. — JOSEPH HARRIS, *An Essay upon Money and Coins* (1757), p. 104.

§ 1. AT the start, attention should be given to a popular confusion of mind between capital and money. Often a belief that "money" is scarce has no more basis than the lack of property, or goods. In truth, what a borrower obtains on loan from a bank is not really "money," but a control over goods, which was the purpose of getting the loan; for, in most cases, the granting of a loan is not followed by the passage of any "money" at all. Adam Smith touched upon the centre of the present-day delusion when he said:

Confusion between capital and money.

> "No complaint, however, is more common than that of a scarcity of money. Money, like wine, must always be scarce with those who have neither wherewithal to buy it, nor credit to borrow it. Those who have either, will seldom be in want either of the money or of the wine which they have occasion for. This complaint, however, of the scarcity of money is not always confined to improvident spendthrifts. It is sometimes general through a whole mercantile town and the country in its neighborhood. Over-trading is the common cause of it. Sober men, whose projects have been disproportioned to their capitals, are as likely to have neither wherewithal to buy money, nor credit to borrow it, as prodigals, whose expense has been disproportioned to their revenue."[1]

[1] Wealth of Nations (McCulloch's ed.), p. 191.

The possession of marketable goods will always create a medium of exchange, if a transfer at some price is desired. When complaint is made of a scarcity of money, and when this cannot be clearly interpreted as a scarcity of marketable goods, the meaning behind the phrase is, in most cases, probably a belief that the prices of their property and goods are lower than they wish, and that, according to the popular dogma, an increase of "money" would raise prices. It is quite unlikely that, in common usage, any distinction is made between the metal used as the standard, and the various devices used as media of exchange; therefore those who speak of a scarcity of money do not make it clear whether they think that the standard metal is scarce, and if so, whether it is "scarce" within a country or throughout the world; or whether there is a lack of the media by which goods, after their price is determined, may be exchanged. In the former case the desired rise of prices could be obtained only by a fall in the general world value of the metal (*e. g.*, gold) commonly used as a standard in commercial countries; and even that would be slow and gradual, if it occurred at all, and it might be counteracted by other forces like progress in the arts. In the latter case, a change in the quantity of the media of exchange might have no influence whatever on prices, because it might not touch at all the metal in which prices are expressed. But seeing that we are not necessarily dependent on the quantity theory, and that we have another analysis of the forces governing prices (both general and particular), we ought not to be led astray by any indefiniteness given to the word "money," in the determination of how much of it a country needs.

Failure to distinguish between the standard and the medium of exchange.

§ 2. The theory once seriously advocated, and even now generally held by great masses of men, that an increase of currency will quicken and revivify industry is necessarily bound up with the truth of the quantity theory. If the latter is unsound, the former has no standing. The essence

of the former is to be found in the expectation that prices would rise, as a matter of course, if the quantity of the circulation were increased. If my previous reasoning has been correct, prices would not rise merely from an increase in the media of exchange; looking only at the money side of the price comparison, prices could not rise unless there were a serious fall throughout the world in the value of gold — which, owing to its great stock, is quite unlikely to occur in any ordinary period of time. But it is as plain as a pikestaff that a rise of general prices may be brought about by a device that would lower the value of the standard, such as a debasement of the coinage, or any legislative operations which might transfer the standard to a cheaper metal, or which might establish an inconvertible paper as a standard on a depreciating level. Here is the milk in this cocoanut. Because of frequent experiences in the past with inconvertible paper, it has been supposed that the rise of prices following new emissions has been the result of an increase of the quantity in circulation rather than the result of a depreciation in the standard of prices (which is itself a change of prices). A test can be made at once: an increase of convertible paper, granting immediate redemption without delay and without expense, would not raise prices, any more than would an importation of gold in the course of international trade; unless there somehow went with the new issues a change in the world value of gold into which the paper is convertible. Those who dread a scarcity of money, and who wish a rise of prices, would not be satisfied with an increase in this kind of money. Analyze the propositions, old and new, and at the bottom of them all there will be found either a confusion of thought between an abundance of goods and an abundance of money; or, a belief that the rate of interest on loans is given for money instead of capital furnished by the banks; or, finally, that it is expected to raise prices by lowering the standard.

Theory that an increase of the currency quickens industry.

Among the more intelligent supporters of the theory that

an increase of the circulation quickens industry, it may be held that an increase of gold in the country would expand the banking reserves and so cause an expansion of credit and a rise of prices. This possibility has already been examined;[1] and it is well recognized, certainly in the history of English banking since 1844, that the banks cannot lead, but must necessarily follow the attitude of the business public.[2] An increase of reserves may often and properly does result from the unwillingness of the banks to lend due to doubts as to the future of trade.

Banking reserves.

In its earlier form the theory had a mercantilist quality. As was shown,[3] moreover, a rise of prices might have resulted — did result, in fact — from such an influx of the precious metals as may have lowered the world value of the standard of prices. This fact, as was also shown, did not imply the truth of the quantity theory. A situation in which the value of the standard of price had been affected by an increase in its supply, however, was that in which we find Hume writing this cheerful and familiar passage:

Rise of prices due to a fall in the value of the standard.

> "We find that, in every kingdom into which money begins to flow in greater abundance than formerly, everything takes on a new face; the merchant becomes more enterprising; the manufacturer more diligent and skillful, and even the farmer follows his plough with greater alacrity and attention." [4]

This outcome arose from a subsidence in the value of the metallic standard due to the new supplies from America, which caused the well-known rise of prices in Europe in those earlier times. The only question of importance in such a case is one of determining individual gains and losses as the effects of the depreciation in the standard spreads from industry to industry and from

Fallacy of Hume's theory.

[1] See *supra*, chaps. v and x.
[2] Cf. Dunbar, Theory and History of Banking, p. 63.
[3] *Supra*, chap. vii, § 1.
[4] Essays, I, p. 313.

one market to another.[1] In considering the activity of trade, also, it is to be remembered that the presence of new gold, like new wheat or other new goods, is itself an increase of wealth, and so far as it goes (even if partially depreciated) it enriches those who have gained it. Apart from this, Mr. Mill has disclosed the fallacy of supposing, with Hume, that there could be a general gain from a rise of prices of this sort:

> "For every person who thus gains more than usual, there is necessarily some other person who gains less. The loser, if things took place as Hume supposes, would be the seller of the commodities which are slowest to rise. . . . This seller has obtained for his commodity only the accustomed quantity of money, while there are already some things of which that money will no longer purchase as much as before, . . . and if the other dealer's industry is encouraged, it should seem that his must, from the opposite cause, be impaired." [2]

The activity of industry ascribed to an abundance of money seems to be usually associated with issues of paper money. Such a rise of price, however, as is supposed to accompany an increase of the currency is really assignable to a depreciation of the paper standard of prices below the value of the metallic money. The usual form of the theory appears in the statements of Mr. Attwood, of the Birmingham currency school, given and criticised by Mr. Mill as follows:[3]

Rise of prices due to depreciated paper money.

> "Mr. Attwood maintained that a rise of prices produced by an increase of paper currency, stimulates every producer to his utmost exertions, and brings all the capital and labour of the country into complete employment; and that this has invariably happened in all periods of rising prices, when the rise was on a

[1] The gains of one group which is the first to obtain the cheapened gold, as against another group whose prices have not yet been affected, as described by Hume, form a process which, on a larger scale, indicates how some nations gained at the expense of others in the distribution of the cheapened gold coming from California and Australia about 1850. In general, a slow distribution at any time goes on under the same process. Cf. also, De Viti, *op. cit.*, chap. vii, §§ 1, 2.

[2] *Op. cit.*, Book III, chap. xiii, § 4. Cf. Walker, Money, pp. 79 ff. [3] *Ibid.*

sufficiently great scale. I presume, however, that the inducement which, according to Mr. Attwood, excited this unusual ardour in all persons engaged in production, must have been the expectation of getting more of commodities generally, more real wealth, in exchange for the produce of their labour, and not merely more pieces of paper. This expectation, however, must have been, by the very terms of the supposition, disappointed, since, all prices being supposed to rise equally, no one was really better paid for his goods than before. . . . It calculates on finding the whole world persisting for ever in the belief that more pieces of paper are more riches, and never discovering that, with all their paper, they cannot buy more of anything than they could before. . . . At the periods which Mr. Attwood mistook for times of prosperity, and which were simply (as all periods of high prices, under a convertible currency, must be) times of speculation, the speculators did not think they were growing rich because the high prices would last, but because they would not last, and because whoever contrived to realize while they did last, would find himself, after the recoil, in possession of a greater number of pounds sterling, without their having become of less value."

Increase of media of exchange would not quicken industry.

If the rise of prices is not due to a depreciation of the standard, it may be due to a fictitious demand arising from abnormal credit in over-trading. If the paper is convertible, as Mr. Mill suggests, this must be the case. That the quickening of industry in this case is only the excitement caused by intoxicants, certain to be followed by collapse and disaster, every student of crises knows. But putting aside the undoubted rise of prices due to a debased or depreciated standard, and that due to abnormal credit, — both evil in their effects, — we should face the question whether, on the grounds of a legitimate theory of prices, an increase of "money" would quicken industry. In the first place, if the "money" which is to be increased were in the form of media of exchange, it would be hard to see how such an increase could affect prices at all; since the standard metal might not be in the least affected. If, however, the standard

metal were more largely used than before as a medium of exchange, it would be equivalent to an increase in the demand for that metal, and if considerable enough, it might raise its world value, — but the final outcome would be a fall of prices. Then there would be none of the desired "quickening" at all. In the second place, if the increase of "money" means an increased quantity of the standard metal within any one country, that may mean only a change in the place of storing it without any alteration in its world value. Or, if the increase means a greater world supply of the standard metal, then the possible rise of prices must necessarily be long delayed, because the existing stock is too large to be quickly influenced by even an exceptional addition to the supply. On any legitimate theory of prices, therefore, we are driven to regard the quickening rise of prices, so much to be desired, as due, not to an increase of the media of exchange (in spite of the quantity theorist), nor to an increase of the standard metal, but, undoubtedly, either to a degradation of the standard, or to the temporary fever of abnormal credit.

And yet it is commonly believed that an increase of the currency is a gain to the community. This belief has assumed different forms. General Walker, in answer to the question how much money does a country require, says: —

> "It is that amount which will keep its prices (after allowance is made for the cost of transporting goods) at a level with those of the countries with which it has commercial relations." [1]

[1] Money, pp. 57 ff. He refers also to this passage of Mr. Mill: "Every country (temporary fluctuations excepted) will possess, and have in circulation, just that quantity of money which will perform all the exchanges required of it, consistently with maintaining a value conformable to its cost of production. The prices of things will, on the average, be such that money will exchange for its own cost in all other goods: and precisely because the quantity cannot be prevented from affecting the value, the quantity itself will (by a sort of self-acting machinery) be kept at the amount consistent with that standard of prices — at the amount necessary for performing, at those prices, all the business required of it." — Book III, chap. ix, § 3.

The distribution of the precious metals between commercial countries, in the proportion that the transactions of each bear to those of the other, is not one to lead to any difference of opinion; and hence no discussion of it is necessary. This general law has been assumed throughout the study of the movement of gold and its effect on prices. But it does not follow from this law that prices in any one country will be in proportion to, or will be regulated by, the quantity of the media of exchange as compared with the goods to be exchanged. General Walker goes on to argue that prices are directly affected by the supply of money — a theory already examined — and that the level of prices could be thereby regulated. It is again referred to here only to show that the conviction that an increase of the currency brings prosperity has its real basis in the incorrect theory that the desired control of the level of prices could be maintained by changes in the quantity of "money." Chevalier, Jacobs, McCulloch, Jevons, and Cairnes are quoted by General Walker[1] to the effect that inflation is a cause of prosperity; in other words, that high prices stimulate industry, and that those high prices result from an increase in the "circulation." Quite apart from leaning on authoritative names, such a result depends very much upon what is meant of "prosperity;" if a feverish speculation is prosperity, then it may be brought about without any increase whatever in the amount of the circulation. If high prices are a good in themselves, the most effective way of raising the level would be by depreciating the standard; then prosperity would spread like weeds.

Supposed gain from increase of currency due to quantity theory.

§ 3. In spite of the flimsy basis of the theory, there is nevertheless some truth in the belief that measures tending to produce high prices stimulate production. Undoubtedly, in the situations usually referred to, there is a quickening of industry when prices go on rising. Let us assume the cause of advancing prices to

Rising prices and debts.

[1] Economic Studies, I, pp. 36–38.

be either a depreciation of the standard or abnormal credit. Each man, separately, finds that his property and goods are valued higher than before in the same monetary units in which his indebtedness is stated; a rise of prices increases the figures in which his wealth is expressed relatively to his debts. This has always been seen, and harped upon, by political demagogues in times of changing prices. Suppose a man owns a house and lot valued in gold at $2000 on which there is a mortgage of $1000; then suppose that the prices of all property and goods rise 100 per cent. His house is now valued at $4000, while his mortgage is unaffected by the change of prices. If he sold his house at $4000, and paid off the mortgage, he would have left $3000. Of course, as Mr. Mill clearly pointed out, this $3000 will only buy one-half as much of everything as before; but the uninformed person is apt in practice to overlook the fact that the dollar has become cheaper, and easily comes to believe that he is richer than ever before.[1] In regard to his debts, he is. Moreover, the belief that he is richer works upon his imagination; he gets a false idea of his pecuniary status; he shows a tendency to an enlarged expenditure; he increases his demand for goods (without having, relatively to other goods, any more property than before); with all others similarly affected, he helps to create a mass of abnormal credit not based on legitimate values (as will be shown if liquidation is precipitated); and at the fatal moment when the bubble is pricked, he goes down with all the others, and in the weary years of the consequent depression he keeps on wishing again for "more money" and high prices. But in the early stages of this process there is often no means by which the seller can separate abnormal from normal credit; the shops have crowds of eager purchasers; the manufacturers have orders ahead, and are running over time. More goods are really produced, more labor is really employed than before; but the demand in truth is generally fictitious. But, for a time at least,

Rising prices do quicken industry.

[1] As to the creditor, and the morality of this procedure, see chap. iii, § 5.

it can be correctly said that the rising prices have stimulated industry.

In the minds of intelligent writers, like General Walker, the quickening of industry was associated with such great movements as the coming of the New Gold, about 1850. If this supply was large relatively to the existing stock, without doubt gold would tend to decline in value relatively to other things; and to that extent gold prices would tend to rise. It was this sort of rising prices which was regarded as giving a buoyant quality to commerce and industry.[1] As has been said repeatedly, new wealth of any kind — gold, cattle, or wheat — will stimulate prosperity; but the mere rise of prices will in the end help only the debtor or the speculator. More wealth, whether expressed in low or high prices, is the real criterion of prosperity.

Rising prices, if due to new gold.

§ 4. Rising prices, on a considerable scale, have generally been found in connection with an issue of inconvertible paper money; and the cause is undoubtedly the depreciation (quite aside from the reason for the depreciation) of the standard in which prices are quoted. An issue of additional paper may aggravate the depreciation, because the greater amount outstanding will strengthen the doubts as to an ultimate redemption of the paper in coin. Hence the relation — even though somewhat irregular — between additional issues and higher prices. Through all the details of an unfortunate experience with depreciated paper the people of the United States passed during the years from 1862 to 1879. In the soil of this experience many rank growths have sprung up, of which the one that rising prices are desirable in themselves has taken strongest root. With this worship of high prices has gone

Tradition in favor of rising prices.

[1] Cf. Walker, Money, pp. 85 ff. Note his attitude on Sir Archibald Alison; and his separation of the question of excessive overissues of paper money from the evils of a reduction in the volume of metallic money. He justified the claims that a reduction of the volume of money was an evil; and he applauded Hume for finding in an increase of money a stimulus to that hope and courage which calls forth "the utmost energies of men."

a common dread of low prices.[1] Of course, after high or low prices are once reached, every one on the new level is in the same relative position to others; the only question is as to how each has been affected by the transition from one level to the other. Creditors, in general, suffer from rising prices, and debtors from falling prices.

As already explained, the chief effects of a depreciation of the standard which raises prices is to stimulate speculation, abnormal credit, and a false demand, which is sure to bring its heavy punishment; or, at the most, it helps the debtor to defraud the creditor. Ordinarily, it touches the latter through the terms of contracts. If the change is a sudden one, it will affect most contracts; if, on the contrary, it comes gradually and requires a considerable time to make itself felt, it will affect only long contracts, chiefly the obligations of governments, municipalities, railways, etc.

But there are other economic effects touching the relative positions of different classes, which deserve study in connection with rising and falling prices. As Mr. Cairnes[2] long ago pointed out, a depreciating standard which brought with it rising prices would cripple those who lived on fixed incomes, especially annuitants, such as orphans, widows, and the aged who had passed out of the work of production; since the higher prices would reduce the purchasing power of their stipends. Likewise those would suffer "whose remuneration is determined more by custom than by competition; and this description includes a much larger number of persons than is commonly supposed,"[3] — such as those receiving stated salaries, college

Rising prices lower fixed incomes.

[1] De Viti thinks a gradual decline of prices would tend to deter capable entrepreneurs from undertaking new enterprises, and thus check the rate of industrial progress (*op. cit.*, chap. vii, § 7). The facts seem to be exactly the opposite: it is the great entrepreneur, like Carnegie, who is always successful in so increasing his total output that he can lower the prices of steel, and thus enable the United States to compete with the world. The declining prices seem to go with a decided growth of industrial progress; but these low prices per unit of products do not imply any scarcity of gold.

[2] Essays in Political Economy, pp. 131 ff.

[3] *Ibid.*, p. 154.

professors, members of the learned professions, civil, military, and naval officials, servants, and even the recipients of ordinary wages.[1]

Effects of rising prices on wage-earners.

The effect of a depreciating standard upon the working classes forms a question in itself which can here be treated but briefly. In discussing the distribution and social effects of the cheapened gold, Mr. Cairnes thought that, as the process moved step by step from one interest to another, the new gold would stimulate some industries before others; that the new demand would there raise prices, and cause higher wages. The higher wages according to this writer, would not be followed by a rise in the same proportion of the articles of the laborer's consumption. Mr. Cairnes finds the general evils of a depreciating standard so great, that this one exception in favor of the working-classes is:[2] "the one great redeeming incident of the gold discoveries. In almost every other aspect in which we contemplate the occurrence, it is fraught with inconvenience, hardship, and injustice, introducing uncertainty into mercantile dealings, disturbing contracts which were designed to be fixed, stimulating the spirit of commercial speculation, already too strong, and bringing unmerited loss upon classes who have the strongest claims on our sympathy, and whom upon social grounds it is most desirable to sustain."

Rising prices inimical to wage-earners.

It may be questioned whether, as has been urged by Mr. Cairnes, a depreciating standard, while a general evil, is in this exceptional case a boon to the working-classes. The new demand and consequent high prices which reach some industries before the effect of the depreciation of the standard becomes general may, as Mr. Cairnes explains, cause a larger production, a greater demand for labor, and consequently higher wages in those industries, but at the expense of those other industries

[1] Those who would gain (cf. Walker, Money, p. 157, note 1) would be "the tax-payer, the lessee, the mortgagor, the client of the lawyer, the client of the doctor, etc."

[2] *Op. cit.*, p. 152.

as yet untouched by the movement. In a case where the depreciation of the standard slowly extends over many years (the one Mr. Cairnes had in mind, rather than a sudden transition to inconvertible paper money), while some of the working classes gain, it is inevitable that others lose through a diminished purchasing power of their money wages. The general result cannot, therefore, be regarded as beneficial even to the workingmen, while the mass of evil produced is admittedly preponderant.

A fluctuating metallic standard, also, produces evil effects sufficient to counterbalance any supposed gains to some laborers. General Walker cites at length from the well-known description by Macaulay of the evil effects of the depreciated coinage of England in 1695, from which I quote briefly:

> "The evil was felt daily and hourly, in almost every place, and by almost every class; in the dairy and on the threshing-floor; by the anvil and by the loom; on the billows of the ocean and in the depths of the mine.
>
> "Nothing could be purchased without a dispute. Over every counter there was wrangling from morning to night. The workman and his employer had a quarrel as regularly as the Saturday came round. On a fair-day or a market-day the clamors, the reproaches, the taunts, the curses were incessant, and it was well if no booth was overturned and no head broken."

A slow change in the value of the standard, however, arising from an excessive supply of a given metal, is not the most serious practical question we have to meet. The rise of prices following the transition from a metallic to an inconvertible paper standard is the one most likely to occur. In such operations it has not been proved that high prices bring high wages without injury to laborers; indeed, with any sudden change in the value of the standard, such as that produced by a transition from a specie basis to an inconvertible paper, the prices of all goods notoriously rise first and to an extreme; while only by dint of pressure and strikes

are the laborers able to reconquer their old level of comfort after forcing a rise of wages proportional to the rise of prices out of unwilling employers.

Believing that a depreciated inconvertible paper money acted as a grievous tax on production, and that it gave "for a time excessive profits at the expense of consumers," General Walker himself came to the following conclusion:

> "It is, however, upon the condition of the laboring classes that a fluctuating paper money works its worst effects." [1]
>
> "'The very man of all others,'" said Mr. Webster, "'who has most the deepest interest in a sound currency, and who suffers by mischievous legislation in money matters, is the man who earns his daily bread by his daily toil. A depreciated currency, sudden changes of prices, paper money falling between morning and noon, and falling still lower between noon and night, these things constitute the very harvest time of speculators, and of the whole race of those who are at once idle and crafty. . . . But the laboring man, what can he hoard? Preying on nobody he becomes the prey of all.'"

Falling prices consistent with industrial progress.

The effects of a steadily falling level of prices upon society are likely to be differently interpreted according to the different explanations of the cause. On the one hand, those who according to the quantity theory attribute the general downward tendency of prices during recent decades to a scarcity of gold, imply that there is not enough "money" (*i. e.*, media of exchange) to do the money work, and hence that prices have fallen. These writers speak of the consequent "strangulation of industry" and the pitiful effects of falling prices.[2] They have in mind chiefly the debtor and the burden of public debts. On the other hand, if, as previously shown, the fall in price per unit of product has not been due to a scarcity of gold, — as is indisputably proved by the recent phenome-

[1] Money, p. 384.

[2] *E. g.*, F. A. Walker, Money, Trade, and Industry, chap. v; *ibid.*, International Bimetallism, pp. 31, 200.

nal increase in the production of gold, without reversing the tendency of prices to fall, — the total productivity of all industries may have increased enormously; the vastly greater product (even in value) coming from each industry, may not only be consistent with, but may be the very cause of, the fall in prices per unit (since the quotations in price tables are based on prices per unit and not on the total values of an industry). The total value of the product of an industry, not the price per unit of product, provides the total from which wages and interest are paid. Of course, granting that the number of units of product remain the same, the total value of the product varies with the price obtained for each unit. But the decline of prices in recent years seems to be accompanied by a phenomenal increase in the yield of gold, and to be explicable only because of a really marvellous development of the industrial arts. Such a falling level of prices, it must be generally admitted, produces no "strangulation," but an abundance of cheaper satisfactions to all classes of society, and especially to the working-classes.

Through falling prices wage-earners obtain some gains of improvements.

It has often been remarked[1] that the economic gains of society resulting from the constant increase of capital, the opening up of new resources, and the cheapened expenses of production, have not accrued to the laboring-classes in the proportion that has been desired. While an absolute gain, as compared with earlier periods, has been recorded, it is believed that their advance has not been in proportion to the general progress of society. While this is not the place to determine whether this undesirable result is due to an increase of numbers of laborers out of proportion to the increase of other factors of production, or not, yet it is very important to understand that precisely through the general decline of prices the laboring-classes have, as a matter of fact, profited by the tremendous industrial progress of the world. Leaving aside, in this discussion, the circumstance that wages in gold

[1] *E. g.*, Cairnes, Leading Principles, p. 275.

are higher now than ever before in the history of the world, the marked improvement in the food, clothing, housing, furniture, light, water, transportation, comforts, and amusements of the workingmen has been made possible by the cheapening of each unit of product caused by the gains of skill and invention. These gains which have accrued to the great body of laborers, moreover, have not come as a result of pressure and strikes; they have been appropriated peacefully and almost unconsciously. Receiving a given, or customary, rate of money wages, the general fall of prices in all industries has brought them more goods for their money, as quietly as a fall of manna from the skies, and without added effort. And since the fall of prices has come about by the progress of industry, there has been no tendency to depress wages because prices per unit have fallen; because, by organization, by invention, by new machinery, the total value of the product of the industry, from which wages and interest are paid, has not been diminished, — nay, it has probably been much increased, and, while prices per unit of goods have been falling, we have had the perfectly consistent phenomenon of a rise also in money wages.

§ 5. From the foregoing discussion there emerges the conviction that the sometime popular belief that rising prices permanently quicken industry, and that the more money a country has the better off it is, is wholly wrong. If the state has allowed the issue of paper money, the eager insistence, which comes in times of depression, to force the government to issue more money and to raise prices is a natural consequence of the unsound quantity theory. Whether we regard the activity of the state from the socialistic or the individualistic point of view, the attempt to raise prices by the issue of more money is indefensible. In the first place, even if the rise of prices could be effected, it would be injurious to the working-classes and to almost every other important interest in society. In the second place, an increase merely of the media of exchange, without destroying

Appeal to state to regulate prices.

its redeemability in gold, would not raise prices, because it would not change the money side of the price-making ratio. In the third place, a rise of prices by a depreciation of the standard would cause a disruption of ordinary industry comparable only with an attempt of a man to pull down his own house upon himself and his family. It would be sheer folly, if it be proposed to continue to live by industry.

But there are those who feel very strongly that wealth is at present unjustly distributed by society, and that a policy of redistribution between the rich and the poor, between so-called debtors and creditors, could be accomplished by a rise of prices, which, it is supposed, would follow an increase of the "currency." Whatever the justice of this plan, it is to be observed that the expected end would not follow the proposed means. Prices do not follow changes in the media of exchange. There is only one way in which it can be done, — by a change to a lower standard. This will undoubtedly explain the fact that certain elements in our political life, which have desired a redistribution of wealth, have really been working for a depreciation of the standard, masked under the guise of a demand for "more money." A change from the gold to a silver standard, or a change from gold to a depreciated paper money, would accomplish this purpose; but an additional issue of greenbacks, or national-bank notes, still kept convertible into gold, would not raise prices, and would not accomplish the desired purpose.

Prices would not follow increase only in media of exchange.

§ 6. In a young country, like the United States in the early decades of the nineteenth century, or in remote and undeveloped parts of our country to-day, it will be found that conditions of life are primitive; effort is concentrated on supplying the primal necessities of life, such as food, clothing, and comfortable houses. While the new country is being conquered and set ready for production in field and mine, the wealth of the individual and of the public is small. Under these circum-

Why a young country has little money.

stances, even though many settlers came from centres of civilization and were acquainted with business methods, there is great economy in regard to unnecessary expenditure. So long as barter will suffice to exchange such goods as they can buy with their own products, even though the trips by wagon to distant towns or ports are hard and dangerous, they will invest little or none of their wealth in a medium of exchange. To the extent that they keep some of their wealth in money about them it is unproductive; it earns nothing while they hold it.

It is only when a country begins to arise out of poverty, and to accumulate surplus wealth, that it can afford, or is likely to indulge in, a quantity of the precious metals to form the machinery of exchange. This was the reason why, early in the last century, very little gold and silver were in circulation in the United States; and it is the reason why metallic money (or paper money redeemable in coin) is also scarce in certain parts of the South and West to-day. A general issue of more money would not benefit them. Just as soon as they have wealth enough to obtain more convenient and efficient instruments of agriculture and industry, they will, for the same reason, be able to possess a more convenient and abundant medium of exchange. It is a question of wealth, not of the symbols of wealth. In proportion to its wealth a community can, and will, obtain all the media of exchange it needs.

Amount of money adjusts itself to needs.

Moreover, as the people further increase in wealth, and amass riches, it is quite likely that they will use less and less of the valuable standard metal as a medium of exchange. Exactly in proportion to its commercial and financial development will it economize the use of the valuable money metal, and secure a safe and efficient media of exchange other than coin; it will then exact that the solvency of these media shall be constantly tested by presentation on demand for the standard metal. Thus the quantity of "money" needed by a country will vary in different sections of its territory, and vary in the

different stages of its commercial development. For the preservation of its standard, and the maintenance of the solvency of its various media of exchange, no very great quantity of gold (if that be the standard) is needed, — a quantity that bears no definite relation whatever to the amount of the community's transactions. The quantity of its media of exchange, under an efficient system of banking, will automatically adjust itself, without any interference by the state, to the amount of exchanging to be done.

The service rendered by money to a community is clear and imperative.[1] For this service a payment is made. The convenience and efficiency rendered by an effective monetary system cannot be obtained for nothing. The cost to the public may be approximately estimated by the interest on the total amount of wealth invested in the machinery of exchange. It goes without saying, therefore, that a country which, by a blundering policy, keeps an unnecessarily large sum of wealth occupied in performing its exchanges — when, under skilful management, a much less sum would do the work equally well — is taxing itself foolishly. There is no more sense in feeling pride in a large *per capita* circulation than in a large *per capita* taxation.

Service rendered by money.

§ 7. Granting all that has gone before, men of affairs are inclined to place great importance on the elasticity of the "currency;" they believe that the quantity of the circulation should rise in times of seasonal activity in agriculture, or trade, and decline when the need has passed. The truth in this belief is confined to the media of exchange. The supply of gold, in proportion to the needs of our country as a whole, will be fully provided, as already described, through the foreign exchanges and by the rate of interest, in our international relations with other countries.

Elasticity of currency.

[1] Cf. F. A. Walker, Money, pp. 13–18. Karl Menger gives an analysis of the need of a community for money in his article "Geld" in Schönberg's Handwörterbuch der Staatswissenschaften, III, pp. 730–757.

But for those transactions and in those communities where money is passed from hand to hand, it must be possible to obtain a medium of exchange capable of enlargement or reduction according to changing needs.

Weekly and monthly demands.

"Entirely apart and distinct from the occasional emergency demands for currency growing out of extraordinary or panic conditions, . . . there are numerous variations in the demands for currency at different times in the year, arising from methods of doing business, and especially from the ebb and flow of industrial activity at different seasons. Where wages are paid weekly, for example, it is evident that there will naturally be a greater demand for currency, or a medium of exchange, on Saturday night and early in the week, than there would be a few days later, when the amounts received in wages at the close of the previous week had been largely spent and returned to the banks in the stream of deposits from local tradesmen. If wages were paid only at monthly intervals, the variations on this account would be even greater. The amounts then required to make payments on the last day of each month, or the amount which the workmen of that community might hold on the evening of that day, would be much more than the amount of currency which would be in the hands of these same workmen four weeks later. In other words, there would be in such a community material monthly fluctuations in the demand for media of exchange, due to the methods followed in making payments for labor."[1]

Seasonal demands for currency.

"The most marked variations in demand for currency in this country occur in connection with the annual marketing of the crops. Owing to the fact that the agricultural classes involved in these transactions do not use the check and deposit system to any great extent, this demand is largely for a note currency. The farmer on selling his crops may indeed receive a check in payment; but as he and a large part of the community with which he deals do not find the check and deposit system con-

[1] Monetary Commission Report, 1898, p. 309.

venient, he is not satisfied with that sort of payment. He cashes the check at the bank, or through some merchant, and thus secures the form of currency which he requires. If he cashes it with a merchant, a portion may be merely offset against his account at the 'store' where he deals, and to that extent the demand may be satisfied without resort to note currency. But not so with the balance; for that he must have coin or notes. Some of this currency is used at once in settling outstanding accounts, and thus gets back to the bank almost immediately through the deposits of the tradesmen. To this extent the demand is of short duration. The rest of the currency is paid out from time to time during the fall and winter for 'help,' and in the purchase of the winter's supplies, or is held in cash in many cases to meet spring payments on a mortgage. The net result is that the average farmer has in his possession for the three or four months after he has sold his crop, a much larger sum of money or notes than during the three or four months immediately preceding. Taken in the aggregate, this makes a largely increased demand for currency in the form of notes in the fall season of the year."[1]

Ordinarily this medium demands small denominations of coin or notes. Within the limits of retail trade, of expenditure for travel where the person is unknown, of purchase of wool, sheep, cattle, etc., by agents who pass through the country districts and must pay cash, — here actual money of some kind is needed which will be superior to the credit of the buyer. Token coinage will be provided by the state, which, under a proper system, will leave the quantity to be determined by the demand.[2] For small notes, a quantity to be fixed only by the extent of such transactions must be provided either by the state or by the banking system, — preferably by the latter, because the banks are discounting and in close contact with actual trade and can perfectly adjust the supply to the demand.

[1] Monetary Commission Report, 1898, pp. 312–313.

[2] See chap. xv, § 2 (4).

Some seasonal demands, however, which may amount to very considerable sums, and arise from payments of dividends, rents, etc., do not often require the payment of money from hand to hand. The requirements for these or for any very large transactions are usually and most efficiently met by a medium of exchange whose elasticity is absolutely perfect, — the deposit currency.[1] To the extent that an increase in immediate liabilities requires an increase of gold reserves, there may be some slightly increased demand in times of seasonal activity for the standard metal; but, in practice, the demand for "money" at these times is for a medium of exchange. What medium is, in fact, used can be ascertained by any one who will take the trouble to examine the figures of clearings at these times. While the largest part of the needs will be met by the deposit currency, still a considerable demand for notes will be felt in many parts of the country. With a proper system of banking, the need for this latter kind of elasticity will be provided for by note issues automatically rising or falling when the demands increase or diminish. In small transactions, in the requirements of rural districts, or in any situations calling for the transfer of actual money, the elasticity will be admirably met by bank issues. But in all payments of a larger amount, in settlement of accounts, or in all cases where checks can be used, the elasticity of the currency will be perfectly satisfied by the deposit currency, which increases safely and in exact proportion to the work to be done.

How seasonal demands should be met.

There is, as yet, a meaning in the demand for an elastic "currency" which has not been treated. The world of affairs has a very strong conviction that the quantity of money is deficient in a time of panic. Very naturally, too, — because at such times legal-tender money is the one thing which a man finds it most difficult to obtain for goods, or at a bank of discount; "money" seems to be scarce, and prices are abnormally low. The

Elasticity in times of panic.

[1] See chap. v, § 4.

level of prices seems to be associated with the scant supply of money.

If we look below the surface it will be found that the real difficulty is not so much a scarcity of money (the original quantity of which has not been destroyed) as the unsalability of goods or securities. The important difference between marketable goods and a medium of exchange is not always kept in mind. The man who needs means of payment is too apt to think "money" is scarce, or hard to get, when in reality he is suffering from a scarcity of salable goods or securities. In a time of stringency each man is thinking of how he can get the means to meet his obligations when due; and because there are legal requirements as to what will be received by creditors, there is a tendency on all sides to clutch at any form of currency which can be used as a legal means of payment. This leads to an unwillingness to allow certain media of exchange to pass out of possession into the hands of others, and causes a restriction of the sums in circulation which, even in normal times, are not supposed to be excessive. At the very time when the tendency to retain legal currency is at the strongest, there is a corresponding pressure to dispose of securities, property, and goods in order to get the means of paying maturing debts.

Unsalability of goods.

The fall of prices in a panic does not prove a scarcity of the standard metal, but the usual collapse of abnormal credit. Moreover, the panic discloses a fact which, in ordinary times, is perfectly well understood and generally accepted, but which always appears as a rude surprise in an emergency. By the evolution of economizing devices, previously described,[1] the world has devised methods of exchanging goods without the use of gold (or the standard commodity). The amount of a country's wealth unproductively invested in its machinery of exchange is, of course, on grounds of business economy, reduced to the minimum consistent with efficiency. The amount of goods exchanged is enormously out of proportion

Specie unobtainable in time of panic.

[1] Chap. i, § 4.

to the amount of gold in the monetary system; and we would not, in normal and civilized conditions, wish it to be otherwise. If over-trading were unknown, and confidence perfect, there would be nothing to interrupt this economizing process from going still farther. But, even in normal periods, if all goods were suddenly held only for payment in forms of legal money, it would be impossible to get enough to go round. But this is practically what happens in a panic: goods, securities, property of every kind are rushed to the market to be sold; their prices fall and their worth as collateral is reduced. Of course, there is not enough gold or convertible notes to be paid for all these forms of property.

Means of payment in times of panic.

The real need in such a time is a means of payment which will be acceptable to creditors in liquidation of debts; in its essence it must be some form of control over marketable goods and property. A check on a solvent bank, wherever that bank is known, or in New York a clearing-house certificate, would serve the purpose of a debtor as well as gold. The question as to the amount of money needed in such emergencies, then, is directly connected with the possibility of providing acceptable "means of payment" for those who can offer sufficient property, securities, or marketable goods (in value, even at low prices, sufficient to "margin" the loan). In short, only he who can offer this security can get the means of payment; but he who can, almost always is — and always should be — able to get the means of payment at the banks.

But, exactly at this point, the question arises: Are the banks limited in their action in discounting safe collateral? Certainly not because of any substantial difficulty in regard to obtaining gold for their reserves. To refuse to loan on good collateral whenever really needed is to precipitate failures, increase the stringency, and increase the demand for accommodation. The only wise plan is to discount freely, and give the intention wide publicity. The banks can gather gold in a temporary emergency, if they wish, with great promptness; their real hesitation in doing so is because they

do not wish to forego profits in order to be always safe.[1] But hesitation in lending usually arises from not knowing absolutely that the security offered can be kept equal to the loan under forced liquidation. In Great Britain the suspension of the Bank Act secures sufficient reserves in the Banking Department; the mere announcement wards off unnecessary applications, and the whole panic is allayed. Sufficient "means of payment" are thus given. In New York, as elsewhere explained, the same general result has been obtained by the use of clearing-house certificates. In Germany the end has been reached by a legal emergency issue taxed after it reaches a certain limit.[2]

The problem of providing a currency which will be sufficiently elastic in times of panic will be solved only by some plan, under rules which will secure it from abuse, which will enable banks to create a legal means of payment acceptable to creditors. A taxable emergency-circulation secured by commercial assets is the device best approved by experience in other commercial countries, and one which will secure that prime essential of an elastic medium of exchange, — its contraction when not needed, as well as its expansion when most needed. A legal recognition of these devices, or a modern adjustment of our banking issues to emergency conditions, would quiet much of the

Emergency circulation.

[1] When the money-market is suffering from "stringency," it will usually be found that relief can be had in one of two ways: (1) lightening the burden of immediate liabilities by reducing loans, or (2) by increasing the reserves. If the banks are committed to carrying certain interests through difficulty, it may be practically impossible to call loans, or reduce liabilities to a large extent; in such a case interest-bearing assets must be sacrificed by being sold for gold, which can be got by importation, or some scheme must be entered into by which securities can be changed into forms of legal money. In the autumn of 1902, the banks, for a time unwilling to abandon their clients, obtained through the Treasury the unusual, and questionable, privilege of extracting government bonds (which could be used as security for additional notes) from use as security for government deposits, and substituting therefor bonds other than those of the nation. This expedient, of course, could be but temporary. The only recourse, sooner or later, must be a contraction of abnormal credit.

[2] Cf. Monetary Commission Report, 1898, pp. 367–368.

apprehension in a crisis, and save serious friction in a period of stress. Whatever may be done, however, in this direction by providing an elastic medium of exchange, it will always be beyond the power of any monetary scheme to avoid over-trading and the consequent collapse of abnormal credit which is at the bottom of panic conditions. Such emergencies cannot be remedied by any modification of the currency, and their evils must be faced as a part of the usual failings of mankind, like sickness and old age.

§ 8. The demand of any one country for gold may be either for monetary or non-monetary purposes. For the latter, it will obtain gold when needed by the same method by which it secures wheat. For the former, it will need gold in reserves, as a means of preserving the standard or as a means of securing the instant convertibility of any one of its various media of exchange into gold; but the United States will require very little gold itself in the form of coin for actual use as a medium of exchange. Hence a movement of gold out of the country may have nothing whatever to do with the preservation of the standard, or the efficiency of our media of exchange, if there is no artificial interference with either. If it is really needed again for these purposes, it will be returned.

Export of gold does not mean contraction of the currency.

A fall of prices also may have no relation whatever to the quantity of the standard gold within the country. If this decline be due to the progress of the arts, which has quite generally lowered the expenses of production of goods, it will be found that the downward movement will not be uniform in all commodities at once, but that differences in comparative prices will be consistent with a generally downward tendency of prices. A fall of prices, in any one country, due to facilities for production superior to those in other countries is not a phenomenon which can be reversed by any such unrelated event as an import of specie. Such a change in prices is likely to be accompanied (as is the case in recent

years in the United States) by a stimulus to the exports of goods. This fall in the level of prices (and for the cause assumed), however, is in itself a rise in the value of gold — which is only another way of saying that prices have fallen. But the prior originating cause itself has a tendency to increase exports relatively to imports, quite independent of the coming of gold. While there is a natural tendency of gold to move towards the country in which prices are falling, it is only for the purpose of paying balances, — and not even then is gold necessarily shipped. What should be kept in mind — a thing which is often overlooked — is that any such tendency of gold to move to a country where prices are low is not, in all probability, coincident with any scarcity of its media of exchange. Since, if a country had a sufficient body of gold to maintain its reserves, consistent with the instant convertibility of its media of exchange into gold, then, even if it had a balance due it, gold would not be imported (unless desired for the arts). It is quite possible, with a vast excess of exports over imports, for a country to decline to use its credits in the form of an import of gold. If the means of investment abroad are attractive, gold will not come back in return for the goods sold abroad, but the value of the goods will there be converted into loanable capital.

Imports of gold not always a gain.

If the standard of prices be that metal which is the one commonly adopted in commercial countries, — gold, for instance, — any one country through its international trade will automatically receive as much gold as the proportion of its needs to those of other countries demands. If it requires gold, it will instantly be imported; if it is a gold-producing country, it will absorb as much as it needs from the home product, and, by the most natural of processes, will send the surplus abroad. So far as "contraction" of the metal, in which prices are expressed, is concerned, such a thing is impossible, at least to the extent of producing any change on a country's level of prices. Such a change could be brought about only by

Contraction of the standard metal unlikely.

influences so great that the world value of gold has been modified through wide-reaching causes touching the demand for and supply of gold throughout the whole world.

Stability of standard saves expense.

The stability of the standard is wholly within the legislative control of any country; if it chooses not to preserve it, if it chooses to vacillate from one plan to another, it will be acting in such a way as to require an undue amount of its resources to be kept in the form of the standard metal; because it will cause the convertibility of its media of exchange in any stable metal to be so uncertain that an unnecessarily large part of the wealth of that country must be invested in its reserves, and for the protection of the various media of exchange, to the general loss of the community.

Fall of prices after the Civil War.

The popular impression, especially in this country, that an increasing volume of money will raise prices, is not only based on an incorrect theory, but is traceable to a wrong interpretation of facts in our own history. The general level of prices can be raised by causes working on the money side of the price ratio; not by changing the volume of the media of exchange, but only by changing the value of the standard in which prices are expressed. In the history of the inconvertible United States notes (or greenbacks) which led to the disappearance of gold from 1862 to 1879, and to the high prices of goods expressed in the depreciated paper money, the rise of prices was falsely attributed to the quantity of it outstanding, and not to the fact that the standard had depreciated. Immediately after the Civil War, when the quantity was practically unchanged (even remembering Secretary McCulloch's reduction), the paper standard was appreciating, and of course prices expressed in paper fell. At the earlier time it was commonly supposed that prices rose because the issues had been increased; and after the close of the war, that prices fell, because of a contraction of the government notes. In reality, there had been no such contraction after the war as could have produced the fall of prices; in truth, the effect

was explicable only on the ground of an appreciating standard. From this experience with a depreciated paper has doubtless arisen the false popular theory that prices depend on the quantity of our circulation. The persistence of the error to the present day is a deadly commentary on the evil influences flowing from a vicious monetary policy in the past.

First, assure the permanence of the standard, then remove all shadow of doubt as to the immediate convertibility of the media of exchange into that standard, and the expansion and contraction of the media of exchange (*i.e.*, the currency) can be, with confidence, left to take care of itself. The conclusion of Professor Dunbar,[1] which was applied to conditions existing in 1879, is in perfect conformity to the general principles of money:

> "In fact, so soon as specie payments were firmly established and the value of the credit currency was settled, by its assured conversion at pleasure into a solid medium, contraction ceased to be any proper object of dread."

[1] Deposits as Currency, Quar. Jour. Econ., July, 1887.

CHAPTER XII

GRESHAM'S LAW

Oftentimes have we reflected on a similar abuse
In the choice of men for office, and of coins for common use;
For your old and standard pieces, valued and approved and tried,
Here among the Grecian nations, and in all the world beside,
Recognized in every realm for trusty stamp and pure assay,
Are rejected and abandoned for the trash of yesterday;
For a vile, adulterate issue, drossy, counterfeit and base,
Which the traffic of the city passes current in their place.

ARISTOPHANES, *Frogs*, 891–898 (Frere's Translation).

BURGON, *Life and Times of Sir Thomas Gresham*, 2 vols. (1839). — PALGRAVE'S *Dictionary*, art. Gresham's Law. — J. L. LAUGHLIN, *History of Bimetallism in the United States*, pp. 26–30, 56-57, 65–69, 76, 87, 147. — BERNARD MOSES, *Legal Tender Notes in California*, Quar. Jour. Econ., Oct., 1892. — HORACE WHITE, *Money and Banking* (1895), pp. 466–468. — W. S. JEVONS, *Money and Mechanism of Exchange*, pp. 80–85. — R. GIFFEN, *Gresham's Law*, Econ. Journ., I, p. 304. — H. D. MCLEOD, *Elements of Political Economy* (1858), p. 477. — IBID., *Bimetallism* (1894), p. 20.

Early statements of Gresham's Law.

§ 1. THE statement of a general principle affecting all kinds of money, paper or metallic, should not be omitted from these chapters because it is already familiar under the name of Gresham's Law. Although this designation has only recently been assigned to it, its operation has been recognized from the remotest times, even by Aristophanes. The earliest treatise[1] on money, by Nicole Orêsme (1364), contained an excellent formulation of the law:

> "That if the fixed legal ratio of the coins differs from the market value of the metals, the coin which is underrated entirely disappears from circulation, and the coin which is overrated alone remains current."

[1] Tractatus de origine, natura, jure, et mutationibus monetarum (Paris). See Wolowski's edition (Paris, 1864). The law was also mentioned by "W. S." (John Hales), 1581.

Copernicus,[1] also (1526), laid down the law:

"That it is impossible for good full-weighted coin and base and degraded coin to circulate together; That all the good coin is hoarded, melted down or exported; and the degraded coin alone remains in circulation."

This principle of money has been given a name[2] for English readers, by which it can be conveniently referred to, through its association with Sir Thomas Gresham, a royal agent of Elizabeth. He pointed out how, by debasement, two kinds of metallic money, although nominally of equal value, could not be kept in concurrent circulation.[3] In the exchanges, wherein coins are valued according to weight, the inferior were separated from the superior coins, and the latter were exported:[4]

"Ytt may pleasse your majesty to understande, thatt the firste occasion off the fall of the exchainge did growe by the Kinges majesty, your latte ffather, in abasinge his quoyne ffrom vi ounces fine too iii ounces fine. Whereuppon the exchange fell ffrome xxvis. viiid. to xiiis. ivd. which was the occassion thatt all your ffine goold was convayd ought of this your realme."

"Though the public generally," says Mr. Jevons,[5] "do not discriminate between coins and coins, provided there is an apparent similarity, a small class of money-changers, bullion-

[1] In his memorial to Sigismund I. of Poland, entitled "De Monetae Cudendae." See also Wolowski's edition (1864). The translations of Oresme and Copernicus are given by White, Money and Banking, pp. 466–467.

[2] H. D. McLeod, in 1858, seems, in his "Elements of Political Economy," to have referred the law to Gresham, and to have thus originated the name. Cf. his "Bimetallism," p 20.

[3] McLeod (Bimetallism, p. 20) finds also, in a "Reply to the Defence of the Bank, setting forth the unreasonableness of their slow payments" (London, 1696), the following clear statement of the law:

"When two sorts of coin are current in the same nation of like value by denomination but not intrinsically, that which has the least value will be current, and the other as much as possible will be hoarded."

[4] Sir Thomas Gresham to Queen Elizabeth, Burgon I, app. xxi.

[5] Money and Mechanism of Exchange, pp. 80–85.

dealers, bankers, or goldsmiths make it their business to be acquainted with such differences, and know how to derive a profit from them. These are the people who frequently *uncoin* money, either by melting it or by exporting it to countries where it is sooner or later melted. . . . Hence arises the practice, extensively carried on in the present day in England of *picking and culling*, or, as another technical expression is, *garbling* the coinage, devoting the good new coins to the melting-pot, and passing the old worn coins into circulation again on every suitable opportunity. . . .

"In all other matters everybody is led by self-interest to choose the better and reject the worse; but in the case of money, it would seem as if they paradoxically retain the worse and get rid of the better. The explanation is very simple. The people, as a general rule, do not reject the better, but pass from hand to hand indifferently the heavy and the light coins, because their only use for the coin is as a medium of exchange. It is those who are going to melt, export, hoard, or dissolve the coins of the realm, or convert them into jewellery and gold leaf, who carefully select for their purposes the new heavy coins." [1]

Profit in using the poorer coins.

Although earlier observers, as well as Gresham, applied this principle to the case of two kinds of coin, the same law applies to the relations of all kinds of money, metallic or paper, in the same system. Bad money drives out good money, whether gold is compared with silver, silver with copper, gold with paper money, or in any combination where two kinds of money of the same face value have different values put upon them by the market estimate.

[1] "From Gresham's Law we may infer the necessity of two precautions in the regulation of the currency. In the first place, the standard coins, as issued from the mint, should be as nearly as possible of the standard weight, otherwise the difference will form a profit for the bullion-broker and exporter. In the second place, adequate measures must be taken for withdrawing from circulation all coins which are worn below the least legal weight, otherwise they will continue to circulate as token coins for an indefinite length of time." Jevons, *op. cit.*, pp. 82-83.

§ 2. Although the number of instances are legion, a few illustrative cases of Gresham's Law are given, in order to show its practical working:

(1) "The most extreme instance which has ever occurred was in the case of the Japanese currency. At the time of the treaty of 1858, between Great Britain, the United States, and Japan, which partially opened up the last country to European traders, a very curious system of currency existed in Japan. The most valuable Japanese coin was the kobang consisting of a thin, oval disc of gold about 2 inches long, and 1¼ inch wide, weighing 200 grains, and ornamented in a very primitive manner. It was passing current in the towns of Japan for four silver itzebus, but was worth in English money about 18*s.* 5*d.*, whereas the silver itzebu was equal only to about 1*s.* 4*d.* Thus the Japanese were estimating their gold money at only about one-third of its value, as estimated according to the relative values of the metals in other parts of the world. The earliest European traders enjoyed a rare opportunity for making profit. By buying up the kobangs at the native rating they trebled their money, until the natives, perceiving what was being done, withdrew from circulation the remainder of the gold." [1]

Japanese kobangs and itzebus.

(2) The striking history of the operation of Gresham's Law in the time of William III. is told thus picturesquely by Macaulay: [2] "The metal was divided with shears, and afterwards shaped and stamped by the hammer. In these operations much was left to the hand and eye of the workman. . . . It was therefore in the course of years discovered that to clip the coin was one of the easiest and most profitable kinds of fraud. In the reign of Elizabeth it had been thought necessary to enact that the clipper should be, as the coiner had long been, liable to the penalties of high treason. . . .

"That was a time fruitful of experiments and inventions in all the departments of science. A great improvement in

[1] Jevons, *op. cit.*, p. 84. [2] History of England, chap. xxi.

the mode of shaping and striking the coin was suggested. A mill, which to a great extent superseded the human hand, was set up in the Tower of London. . . . The pieces which it produced, however, were among the best in Europe. It was not easy to counterfeit them; and, as their shape was exactly circular, and their edges were inscribed with a legend, clipping was not to be apprehended. The hammered coins and the milled coins were current together. They were received without distinction in public, and consequently in private, payments. . . . Any man of plain understanding might have known that, when the State treats perfect coin and light coin of equal value, the perfect coin will not drive the light coin out of circulation, but will itself be driven out. . . . It might therefore have been predicted, as confidently as anything can be predicted which depends on the human will, that the inferior pieces would remain in the only market in which they could fetch the same price as the superior pieces, and that the superior pieces would take some form or fly to some place in which some advantage could be derived from their superiority.

Working of the law in England in Locke's time.

"The politicians of that age, however, generally overlooked those very obvious considerations. They marvelled exceedingly that everybody should be so perverse as to use light money in preference to good money. In other words, they marvelled that nobody chose to pay twelve ounces of silver when ten would serve the turn. . . . Fresh waggonloads of choice money still came forth from the mill; and still they vanished as fast as they appeared. Great masses were melted down; great masses exported; great masses hoarded: but scarcely one new piece was to be found in the till of a shop, or in the leathern bag which the farmer carried home after the cattle fair. In the receipts and payments of the Exchequer the milled money did not exceed ten shillings in a hundred pounds. . . . During many years this evil went on increasing. . . . It was to no purpose that the rigorous laws against coining and clipping were rigorously executed. At every session that was held at the Old

Hanging could not stop the working of the law.

Bailey terrible examples were made. Hurdles, with four, five, six wretches convicted of counterfeiting or mutilating the money of the realm, were dragged month after month up Holburn Hill. One morning seven men were hanged and a woman burned for clipping. But all was vain. . . . It may well be doubted whether all the misery which had been inflicted on the English nation in a quarter of a century by bad Kings, bad Ministers, bad Parliaments, and bad Judges, was equal to the misery caused in a single year by bad crowns and bad shillings. . . .

"Locke recommended, as Dudley North had recommended, that the King should by proclamation fix a near day after which the hammered money should in all payments pass only by weight. The advantages of this plan were doubtless great and obvious. It was most simple, and, at the same time, most efficient. What searching, fining, branding, hanging, burning, had failed to do would be done in an instant. The clipping of the hammered pieces, the melting of the milled pieces, would cease."

Finally it was resolved by Parliament that May 4, 1696, should be "fixed as the day on which the government would cease to receive the clipped money in payment of taxes," and the whole difficulty ceased; because there was no longer any profit in clipping the coins.

(3) In the United States, between 1792 and 1834, there was an admirable illustration of the process by which, under Gresham's Law, the cheaper silver drove out the dearer gold. The original mint ratio in the first Coinage Act of April 2, 1792, was 15 : 1. As early as 1795 the market ratio fell to $15\frac{1}{2} : 1$; by 1808 it had fallen to 16 : 1; and after 1820 it was continuously lower than $15\frac{1}{2} : 1$. The operation of the law is very simple. The possessor of gold and silver always has two places for the disposal of his metal: the mint, or the bullion market. He acts just as any man does who has goods to sell; he takes his wares to that place where he can get the most for them. By the change in the market value of silver bullion due to the

Case of coins in the United States 1792-1834.

great output from the Mexican mines, an owner of silver saw that in the bullion market it took sixteen ounces of silver to buy one ounce of gold; but fifteen ounces of silver when coined at the mint were given circulation at a rate equal to one ounce of gold. Thus there existed a profit of one ounce of silver (if the market rate was 16 : 1) in favor of coined over uncoined silver. Having obtained silver coins, the owners offered them in exchange for gold coins, so long as any of the latter remained in circulation. The gold coins thus collected were not again passed out; because an ounce of gold in the bullion market bought 16 ounces of silver bullion, while as coin it bought only 15 ounces of silver coin. Thus a premium existed in treating gold as bullion and silver as coin. So long as a divergence existed in the bullion market from the legal ratio, there was a tendency to coin the cheaper and melt the dearer metal. Under this principle the effects were noticeable as early as 1806; and by 1819 gold had disappeared, and silver had become the only coinage in use.

In an attempt to recover a gold circulation, the Act of June 28, 1834, fixed the mint ratio at 16 : 1. But in the bullion market the ratio of silver to gold never once thereafter fell to 16 : 1 for over twenty-five years, having ranged between 15.19 : 1 and 15.93 : 1. As a consequence, one ounce of gold when coined bought 16 ounces of silver, but as bullion only 15+ ounces of silver. There was a profit in using gold as coin, and silver as bullion. Gold flowed to the mint, and silver was exported or melted.

Case of coins in 1834–1853.

(4) We have in our own history, also, an illustration of the working of Gresham's Law in the case of gold and a depreciated paper, as well as in the case of subsidiary silver and a depreciated paper.

The United States notes (known as "greenbacks"), first issued February 25, 1862, during the Civil War, began to depreciate about the time of the proposal for a second issue in June, 1862 (finally enacted, July 11, 1862). By June 27 the paper dollar had fallen in value to $0.9132 in gold; and by July 22, to $0.8325. Since the notes had been made a legal

tender for all "debts public and private" (except interest on the public debt, and in payment of customs), the cheaper notes drove out the dearer gold. Gold disappeared from circulation, and never reappeared until just before the resumption of specie payments, January 1, 1879.

More than this, the depreciating paper drove out the token fractional silver as early as July 2, 1862. The subsidiary silver coins contained 345.6 grains of pure silver to the dollar. At that time the silver dollar piece, containing 371.25 grains pure silver, was worth $1.0416 in gold; so the value of the subsidiary silver in gold was about $0.9696 to the dollar. As soon as the paper depreciated below $0.9696, it became profitable to export or to melt the fractional silver coinage; this happened before July 1, and in a few days these coins had entirely disappeared.

(5) In order to present cases from as wide a field as possible, a brief account of the monetary experience of Chili may be given.[1] On January 19, 1851, the free and unlimited coinage of both gold and silver was authorized at the mint ratio of 16.39 : 1 (the gold peso containing 1.5253 grammes, and the silver peso 25 grammes, both nine-tenths fine). In that year the market ratio was 15.46 : 1; not until 1875 did the market ratio, in the course of the fall in the value of silver, reach the mint ratio. To 1875, therefore, silver in the form of bullion bought more gold than it did as coin; while gold in the form of coin bought more silver than it did as bullion. Hence from 1851 to 1875 there existed a tendency of gold to flow towards the mint and of silver to go out of the coinage. By 1860 silver had practically disappeared. Thus, in this period, more gold than silver pesos were coined in Chili. The case of Chili.

But when the great fall in the value of silver came, the very reverse took place. The mint ratio being still 16.39 : 1, when silver fell to 17 : 1, or lower, gold in the form of bullion bought more silver than it did in the form of coin, and hence

[1] Money and Prices in Foreign Countries, U. S. Consular Reports, XIII, Part I (1896), pp. 176–205.

passed quickly out of circulation. Consequently after 1875 silver became the only coin in use.

A further operation of Gresham's Law was seen in 1876, by which time the bank-note circulation of Chili, that had been made equally receivable with silver in payments to the government, had depreciated[1] in value below the silver peso. The poorer bank-notes then drove the better silver coins out of the circulation, since both kinds were usable for the same purposes.

§ 3. The complete working of Gresham's Law is dependent not only upon a divergence between the mint and the market values of two kinds of legal coins, but also upon other conditions. Supposing the metals to have a relative value in the coinage different from that in the market, and supposing both to have an unlimited legal tender in all payments, it does not follow that the cheaper money will always drive out the dearer. The operation of the law, in such cases, still depends upon the extent to which the coins can be minted. If there is free coinage, the law will act rapidly and unmistakably, provided the supply of bullion for the cheaper money is large enough to fill the usual and existing demand for the dearer metal. The chance for profit in coining the cheaper metal will maintain the operation of Gresham's Law only so long as that chance exists; that is, so long as any of the dearer metal remains in circulation.

Gresham's Law dependent on free coinage.

When the state itself, however, buys the bullion and issues token coins at par, there still is a profit; but because of the

[1] July 22, 1878, the bank notes were declared inconvertible. This continued until June, 1895. The gold peso had been worth about 45 pence in English money; but the paper followed the cheaper of the metals, so far as its value followed any.

The silver peso by 1895 had fallen in value to 21 pence; but the government paper-money had fallen as low as 11½ pence, in June, 1894, showing a depreciation even below the silver, because of the lack of provisions for immediate redemption in either gold or silver. Resumption of specie payments was finally accomplished in coin, on June 1, 1895, accepting the silver peso of 25 grammes at its market value in gold (about 18 pence).

absence of free coinage, the profit goes to the public treasury, and it is, of course, limited by the amount of the coinage. Under the laws of token money,[1] the amounts which can be put into circulation are limited to certain needs, and any excess is prevented by a system of redemption. An excellent illustration of such a case is to be found in the issue of the token silver dollar of the United States containing 371¼ grains of pure silver. Although it carries a seigniorage of over 55 per cent, it is kept at par by a system of quasi-redemption. But since there is no free coinage of silver dollars, the profit on the issues is covered into the treasury of the United States; there is no profit to a private person in coining or melting them.

Why token money does not drive out superior coins.

A case may arise wherein, although free coinage does not exist, Gresham's Law may come into operation. For instance, if the system of quasi-redemption by which our silver dollars are kept equal to gold were to fail, while they still remained an unlimited legal tender, these dollars would depreciate below their par in gold. Instantly they would appear in circulation instead of gold, and gold currency would be to some extent withdrawn; to what extent would depend upon the quantity of the silver dollars authorized. Should the silver coins be insufficient to fill the circulation, some gold money would remain in use; but the two varieties of money, being no longer inconvertible, would have different values, to the greater or less inconvenience of the public. If the silver coins existed in an amount sufficient to supply the demand to the full extent to which gold had been used before, then all the gold money would be withdrawn from current use.

Effect of redeemability on Gresham's Law.

The issue of an inconvertible paper money which has depreciated would act similarly. In regard to such a paper, although made a full legal tender, there is no such thing as free coinage. In the nature of things the quantity of paper depends not upon the public, but upon the will of the issuer.

[1] See *infra*, chap. xv, §§ 2, 4.

If the amount issued were insufficient to fill the ordinary channels of circulation, even if the paper were depreciated, some specie would probably remain in use. The paper, at a discount largely dependent upon the belief in its future redeemability, together with any gold that might be required would make up the total circulation; but the two kinds of money would have separate values, and would not be interchangeable. Very easily, however, the issues of paper might be increased by the state to an amount sufficient to drive out all the coin formerly in circulation.

§ 4. It has been the common practice to refer to the figures of the mint to show the actual operation of Gresham's Law.

Evidence of mint figures.

Nor can there be much doubt that the evidence is in the main unmistakable. When silver, for instance, was cheaper than gold in the United States in 1792–1834, the preponderant coinage at the mints was clearly silver. Likewise, when gold was cheaper in 1834–1860, the preponderant coinage at the mints was clearly gold. These conclusions may be seen from Diagrams XVIII and XIX.

From an inspection of the facts, there appears to have been some coinage of gold in the first period after 1818, when it

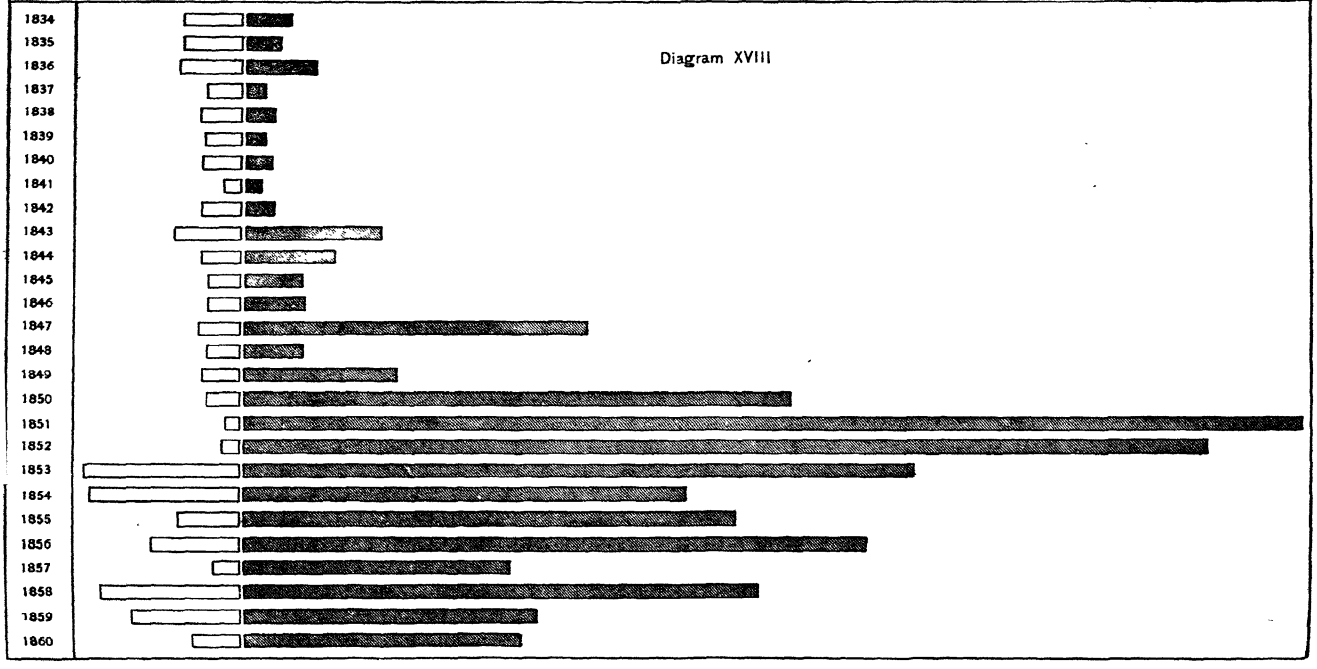
Use of coins in arts.

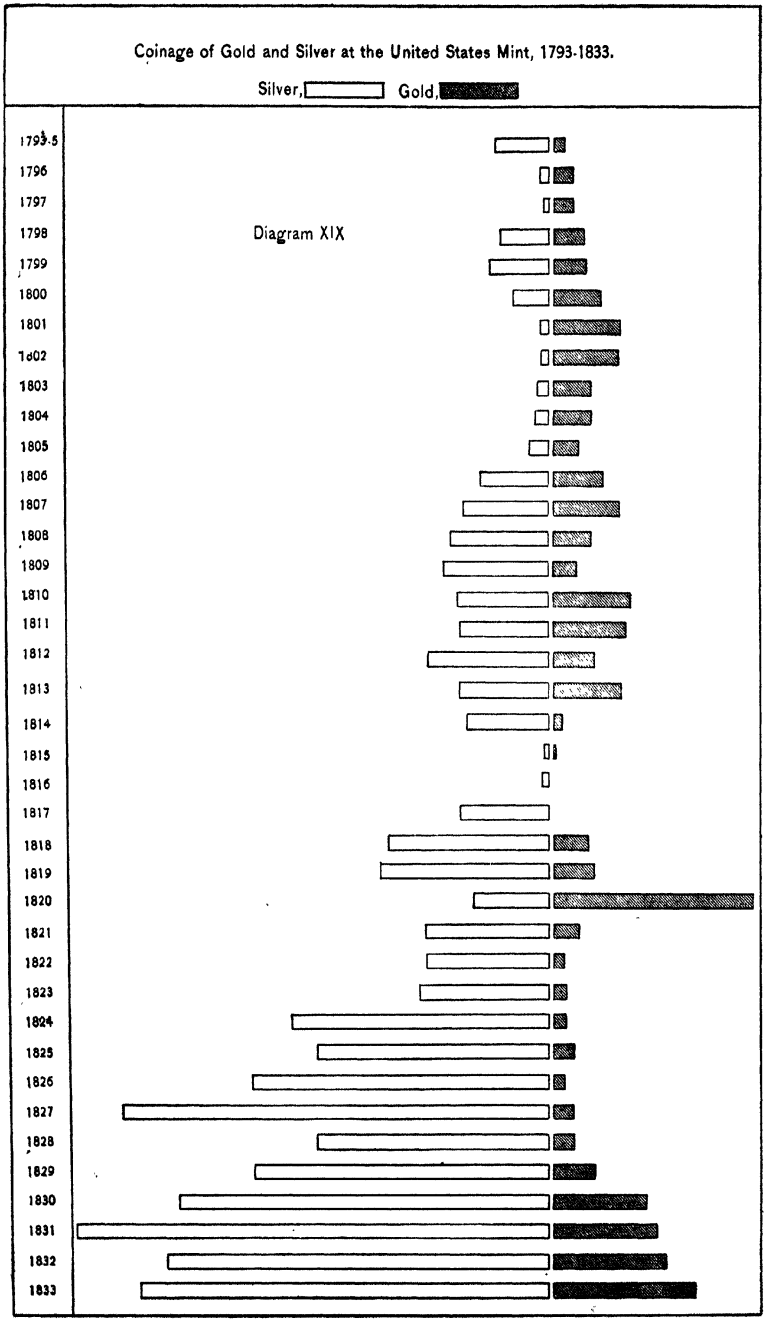
was unprofitable to put gold into circulation with silver; and in the second period, from 1834 to 1850, there was more or less silver coined when it was likewise unprofitable to use silver as coin. On this point, however, it should be always kept in mind that all of the metals coined do not necessarily pass into circulation. In fact, the coinage figures furnish no evidence whatever as to the amount of coins which go into the monetary system. The explanation of this process is not far to seek. Much bullion constantly goes to the mint, where it is authoritatively assayed and coined, because in that form it is most suitable for certain markets. Also, jewellers, makers of watch-cases, and others regularly buy coins in order to convert them into articles of merchandise.

But in general the mint figures correctly show the pre-

The Coinage of Gold and Silver at the United States Mint, 1834-1860. Silver Gold

Diagram XVIII




Coinage of Gold and Silver at the United States Mint, 1793-1833.
Silver,
Gold,
Diagram XIX
1793-5
1796
1797
1798
1799
1800
1801
1802
1803
1804
1805
1806
1807
1808
1809
1810
1811
1812
1813
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1815
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1822
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1832
1833

vailing tendency of Gresham's Law to send to the mint the metal which is worth more in the form of coin than as bullion; and they also mark the opposite tendency, namely, not to coin the metal which is worth more as bullion than it is as coin. The evidence of the mints may sometimes, but not always, be confirmed by the figures of exports and imports of the precious metals. Under Gresham's Law, however, the dearer metal is not necessarily exported; because it may be hoarded, or in other ways kept out of circulation without leaving the country. In the case of a depreciated paper, for instance, gold might be needed for special purposes, such as international payments, and consequently considerable sums may be kept on hand and disposed of to importers at a premium over the cheaper money generally in use.

Evidence of exports not good.

§ 5. One of the essential conditions for the operation of Gresham's Law is that the different kinds of money should be equally a legal payment for some common purposes. Supposing the kinds of money in question to have a ratio to each other in the market different than they have in the legal ratio, then it will be seen at once that the cheaper will not drive out the dearer unless they are equally a legal tender for common uses. The opportunity to earn the profit obtained by changing one for the other depends on their being equally acceptable at some places of receipts (usually for customs, or other dues to the government). So vitally necessary is the legal-tender quality to the operation of Gresham's Law that the instant remedy for the disappearance of the dearer money is the withdrawal of the legal-tender power from the poorer money. How effective this remedy may be when all others have failed has probably been observed already in the experience of England described by Macaulay in the reign of William of Orange. The legal-tender quality of the inferior money is essential to the possibility of obtaining the profit arising from setting Gresham's Law into operation.

Dependence of the law on legal tender.

§ 6. Assuming the dependence of Gresham's Law upon free coinage and legal-tender provisions, the question may be raised whether its action can be prevented. Has it any limitations which can be called into existence by the force of public opinion, and prevent the cheaper money from driving out the dearer? In this country the experience of California in maintaining a gold circulation during the Civil War while the depreciated United States notes were legal tender throughout the Union, has been referred to as a case in which public opinion could prevent its action.

Limitations upon the law.

The habit of using only gold and silver as money had become firmly imbedded in the public consciousness of California. This custom had been established many years before the war began, in fact ever since the discovery of gold in that state. The constitution of California, moreover, forbade the use of credit instruments as money. Into such a system as this the depreciated legal-tender notes entered after 1862. Under the normal action of Gresham's Law, the depreciated paper of the national government invaded the state and became a menace to all creditors who had existing contracts. In a case cited by Professor Moses[1] a debtor, March 5, 1863, when greenbacks were worth sixty-eight cents on the dollar, offered the depreciated paper in payment of a debt for $10,000 previously contracted. The total loss to the creditor in this case was about $3500. Such operations seriously affected contracts which had been based upon the sale of products and the expectation of payment in gold coin. The state of feeling against the use of the depreciated notes was so strong that the first attempt to prevent the action of Gresham's Law took the form of an agreement by merchants not to pay out or to receive the legal-tender notes except at their market rate in gold. In fact, a black list was intended to be created for those who refused. No better illustration could have been devised of the conflict between economic law and the general operation of public

Case of California.

Public opinion ineffective.

[1] Legal Tender Notes in California, Quar. Jour. Econ., Oct., 1892.

opinion. If the latter could prevent the action of the law, it would be done here, if ever. In actual fact, so long as there was a profit in the operation, the process adopted was ineffective. It goes without saying that, while human nature is what it is, self-interest will prompt the use of the cheapest way of paying indebtedness. The agreement of merchants was not sufficiently coercive to prevent this result.

The situation contained in itself the evident fact that Gresham's Law would continue to operate and that contracts might be paid in the depreciated United States notes. This led to so general a feeling of insecurity in granting loans that the rate of interest was doubled; in fact it almost stopped the making of loans. So serious was the outlook in the early part of 1863, that the public looked about for other practical means of preventing the operation of Gresham's Law.[1] In the Legislature a measure was introduced asking Congress to except California from the operation of the legal-tender law. The futility of such action was soon perceived, and the measure was abandoned: if California were to be excepted from the operation of the law, why not other states? Such a method was impossible.

This last step having been abandoned, recourse was had to a procedure which practically admitted the effectiveness of Gresham's Law to act under all conditions irrespective of public opinion. The final outcome emphasized what has been already said as to the dependence of Gresham's Law upon legal-tender enactments whenever they make more than one kind of money equally good in all payments. The final and effective step to preserve the gold circulation against the attacks of depreciated paper was a resort to legal means of enforcing contracts drawn in a specific kind of money.

[1] In 1862 the Supreme Court of California decided that the legal-tender note could be refused for taxes to the state. A debt was defined to be a sum of money due by contract, express or implied. It was held that taxes were not debts originating in the past; that a tax was a current charge and did not arise from a contract; that it did not establish the relation of debtor and creditor. Hence it was declared that the payment of taxes did not come under the provision that the United States notes should be a legal tender for "debts, public and private."

The California statute of 1851 regulating proceedings in civil cases was, April 27, 1863, amended to allow the enforcement of contracts in a specific kind of currency, or money. The law did not attempt to discriminate between the two kinds of currency, but put the debtor and creditor in a position to enter intelligently into a contract. If they desired to insure gold payments, it was put within their power to enter such a provision in the contract; and, according to this law, such an obligation would be enforced by the state. In July, 1864, this act, commonly known as the Specific Contract Act, was declared constitutional by the Supreme Court of California.[1] The law was made retroactive, and, in its practical operation, resulted in large advances to investors in California and a vast improvement in the market for loans.

Resort to law of specific contracts effective.

The relations of this case to the general subject of legal tender[2] may be briefly stated. At common law, money damages were obtained for breach of contract. It was in later times, after courts of equity obtained authority, that specific performance of the terms of a contract was granted, in case injustice might result from not getting back a certain thing in kind. This equity principle was applied originally to loans where there was no remedy at law; more recently, and in the United States, specific performance of a contract has been granted in cases affecting personal property or service, or where the remedy at law was less effective than the one granted by the common law. It will be understood, then, that the specific performance of a contract was obtained only by courts having equity jurisdiction, and not by the common law.

Origin of the remedy.

[1] Carpentier *v.* Atherton, 25 Cal. 564: "A contract payable in money generally is, undoubtedly, payable in the kind of money made by law legal tender, at the option of the debtor at the time of payment. He contracts simply to pay so much money, and creates a debt pure and simple; and by paying what the law says is money his contract is performed. But, if he agrees to pay in gold coin, it is not an agreement to pay money simply, but to pay or deliver a specific kind of money, and nothing else; and the payment in any other is not a fulfillment of the contract according to its terms or the intentions of the parties."

[2] Cf. *infra*, chap. xiii.

When the United States notes were made a legal tender for all debts, public and private, by the Act of February 25, 1862, a condition was created under which two kinds of money of different values were given practically the same legal-tender power in paying debts. The question at issue was whether the legal-tender enactments could be so interpreted as to prevent the operation of Gresham's Law. That is, would a contract drawn in "gold dollars of the standard weight and fineness" or "legal silver money of the United States" be enforced? The state of California[1] declared that specific contracts could be enforced. The question as to the constitutionality of such enactments by a state came to the United States Supreme Court for final decision in 1868,[2] and the California act was sustained by the declaration that contracts for United States coin could be discharged only in the coin for which payment was entered. This decision, therefore, has removed the necessity for all specific contract legislation by Congress,[3] and is to be taken in connection with the general legal-tender laws of the country in considering the practical operation of Gresham's Law. In case separate states should be unable to counteract this decision, it would be true that when two kinds of money having different values are made equally a legal tender for certain purposes, the operation of Gresham's Law can be prevented by a resort to contracts drawn in a specific kind of money.

New legal issue arose.

Specific contracts constitutional in the United States since 1868.

It is possible, however, that the states may be able to interfere with this process. The case of Bronson *v.* Rodes, decided that the national legal-tender laws do not forbid

[1] The example of California was followed by Nevada, Jan. 4, 1864, and the Nevada Act was finally declared constitutional in that state in 1868.

[2] Bronson *v.* Rodes, 7 Wallace, 239.

[3] In the Bland-Allison Act of Feb. 28, 1878, the last phrase, "which coins . . . shall be a legal tender, at their nominal value, for all debts and dues, public and private, *except where otherwise stipulated in the contract*," was wholly useless, and had been since 1868. Although these silver dollars were a full legal-tender, so also were gold and United States notes; and a contract drawn in terms of any specific kind of money could be enforced without any such special legislation.

specific contracts in coins of any one metal; but the belief has been expressed that the possibility of control by individual states over contracts by their citizens is not thereby determined. The States of Kansas, Colorado, Idaho, and South Dakota[1] recently passed statutes forbidding their citizens to make any contracts not performable by payment in any lawful money, such as silver dollars; *e. g.*, no person could, after the act, make a contract to pay in gold dollars, which was not equally liquidatable in silver dollars. In so far as such legislation affects only future contracts, it does not contravene the constitutional provision forbidding the states to make anything but gold and silver coin a tender in payment of debts; and it is in aid of, rather than contrary to, federal legislation. Here is found an exercise of the police power by the individual state, which has not yet been passed upon by the Supreme Court of the United States. The point involved is whether the voluntary contract between the parties is against the public good. Such a statute undoubtedly does interfere with liberty of contract; but so do usury laws and a state admittedly has power to pass usury laws. If it can be established that to pay in gold has a damaging effect upon a debtor, or is against the public good, it is good law, because within the power of the state (as much as usury laws). But what is thus good law may be bad legislation; what is within the power of the state, may not be justified on economic or moral grounds. Such statutes, doubtless, have been urged on the ground of a faulty theory of the relation of gold to prices; because it has been assumed that the fall of prices has been assignable to a scarcity of gold,

[1] Kansas, March 9, 1893, chap. 99; Colorado, April 5, 1893, chap. 114; Idaho, March 1, 1893 (repealed in 1899); and South Dakota, 1891, chap. 85. The last-named state, for instance, enacted that it shall be unlawful for any owner of any kind of evidence of indebtedness to require that principal or interest shall be paid in any certain kind of lawful money, and that the debt shall be deemed paid when the specified amount, with legal interest, is tendered in any money that is a full legal tender for public and private debts. For information on this question I am indebted to Professor E. Freund of the Law School of the University of Chicago.

and that to pay in gold is a burden from which the state should relieve the debtor (whether making the contract willingly or unwillingly). If the public and the courts should come to understand the true relation of gold to prices, — that changes in the relation between gold and goods are inevitable, are constantly taking place, prices sometimes rising, sometimes falling, sometimes favoring the debtor, sometimes favoring the creditor, in the long run falling through the effects of improvements of production, although gold is abundant, — such legislation would become impossible. To legislate to protect men from the usual consequences of changes in the relations of goods and gold goes too far in paternalism, and would justify state aid for any and all failures of a private merchant to meet the ordinary emergencies of trade,[1] such as buying materials at the right time, or giving credit to the right sort of buyers. Therefore, when the true relation of gold to prices becomes generally accepted, no individual state will use its power to pass such acts; and what is bad legislation will not be passed even though it is good law. In such ways must the development of economic truth precede and influence the character of our state legislation. But should statutes of this kind be found constitutional, in those states in which they have been passed Gresham's Law would not be prevented by specific contracts. Specific contracts, however, drawn in other states than these, and not dependent on those other states in any way for their enforcement, would still be valid under the decision of Bronson *v.* Rodes.

[1] Cf. *supra*, chapter iii, § 5.

CHAPTER XIII

ORIGIN AND HISTORY OF LEGAL TENDER IN GREAT BRITAIN AND THE UNITED STATES

Money has not been generated by law. In its origin it is a social and not a state institution. — KARL MENGER, *Economic Journal*, 1892.

For the legal and historical material of this chapter I am indebted to S. P. BRECKINRIDGE'S *Legal Tender:* A Study in English and American Monetary History (1902), a monograph prepared in my seminar, and one of the Decennial Publications of the University of Chicago.

§ 1. THE influence of legal-tender provisions upon the value of any particular form of money has received more or less popular attention; but its place among the principles of money, its economic effects, its origin, its historical development in our own jurisprudence, have rarely been given systematic treatment. For a time it was tacitly assumed by our statesmen that the legal-tender quality was essential to the circulation of both metallic and paper money. Indeed, it is doubtful if, to-day, there is any clear understanding as to whether or not only the standard metal should be given this legal power; or whether all the forms of money which serve as media of exchange should be made a legal tender for existing debts; or even whether only some media of exchange, and not others, should have it. But, before reaching these economic and monetary questions, it is necessary to get the historical and legal perspective in which the economic problem is set. Attention will, therefore, be first given to the beginnings of the legal-tender idea in the law and practice of Great Britain, to be followed by an account of its development in our colonies and in the United States.

What kind of money should be made legal tender?

§ 2. The legal-tender conception did not, of course, have its origin in legislation, or in decisions of the courts, but in the early prerogative of the Crown. From pre-Norman times it was as much a part of the royal prerogative [1] to control the coinage as it was to control the public peace. According to Sir Matthew Hale, [2] this power included control over the weight, alloy, and denominations of the coins; the legitimation of foreign coins; and the alteration of any denominations already in use. It was exercised by royal proclamation or by an indenture between the King and the Master of the Mint.[3] Thus matters stood, without a share being allowed to the legislative branch, until, in 1695, William of Orange threw the burden of it on Parliament.

Legal tender originated in Crown.

It is not to be supposed, however, that Parliament did not struggle for control over the coinage, as it did over taxation, but it was not so successful in the former case as in the latter. In 1311 the Lords Ordainers ordered that there should be no change in the coinage without the consent of Parliament; but it had no effect. In 1331 Edward III. consulted his Parliament. In 1335 a statute was passed prohibiting the taking of money from the realm. In 1346 the Commons petitioned the Crown that penalties should be imposed on the exportation of good, and the importation of bad, money, and it was granted; that more coins be made, and that mints be opened at the accustomed places, and it was granted; that the King's receivers should take the coins at the same rates set for the people, and it was granted; but when it was petitioned that no change should be made in the coins without consent of

Parliament did not obtain power over it.

[1] On the Continent the power of the Norman feudal lords included the right to debase the coinage, and take a seigniorage. Indeed, in consideration of waiving this right, they were allowed a tax (*le fouage*). A similar tax was tried under the name of *moneyage* in England, but failed.

[2] A History of the Pleas of the Crown, First American edition (Phil., 1847), I, pp. 190–193.

[3] Of the latter, two examples, in 1280 and in 1351, are given. Cf. Breckinridge, *op. cit.*, chap. iii.

Parliament, it was not granted. In 1351 the coinage was ordered by statute not to be issued below the ancient sterling weight and alloy,[1] but this had no result, for the Commons, in 1353, were found again petitioning to the same effect. In the reign of Henry VII. (1485–1509) Parliament lost all it may have gained. In 1504, in spite of attempts to assert the right of Parliament to confirm royal acts, that body declared that all royal coins should be accepted at the rate at which they were issued. And even in the reign of Charles I., when the Commons had assumed control of the coinage, no coins were issued without the image and superscription of the King during his life.[2]

In brief, before 1774, all coins issued from the royal mint, and duly legitimated, whether by proclamation or not, became *ipso facto* a legal tender, unless otherwise expressly declared; that is, the being a legal tender was an implied quality of all lawful money.[3] Therefore "current" coin was an expression of the fact that it was a legal tender everywhere within the jurisdiction of the issuer.

All current coin lawful.

It is to be borne in mind that, in the early portion of the period under consideration, freedom of contract and freedom

[1] This was the act which wrongly led Blackstone (I, chap. vii, p. *276) to believe that the King was forbidden to debase the coinage. This is well shown by Miss Breckinridge to be an error.

[2] Although in these days the act of the Crown is an act of the ministry (*i. e.*, of a majority of the Commons), the influence of the old conception still breathes in the present procedure as exhibited in this passage from Lord Liverpool: "This was certainly a question [to remedy the defects of the silver coinage] upon which the crown by its prerogative had a peculiar right to decide . . . ; but when the matter is of so much importance and so directly and immediately connected with the interests of all classes of the community, no ministry would be disposed to give advice to the crown after the proper mode of proceeding without submitting their advice to the consideration of Parliament." Hansard, Vol. 34, 911, Lord Liverpool, May 30, 1816.

[3] In 1702, in regard to gold coin the Court said: "Though there is no act of Parliament or order of state for these guineas [their issue rested only on indenture], yet being coined at the mint and having the King's insignia upon them, they are lawful money at the value they were uttered at the mint." Dixon *v.* Willows, 3 Salkeld, 238.

Cf. also Wade's Case, 43 Elizabeth Rot., 406.

of commerce did not exist in England. Strict regulation of trade by the government was the rule. As regards what in modern law are termed "executed contracts," such as are performed in any market at the same time and place, by the actual passage of money, and in which no time element enters, the dictation of the Crown appeared in that peculiar form of legal tender which required the seller to take the coins at the rate at which they were named in the proclamation; and which, in case of refusal, was followed by heavy penalties. The natural method of escaping this rule by fixing the price accordingly was met by acts intended to regulate prices. Hence it is that this part of legal-tender history became a part of English criminal law.

Executed contracts.

Our main interest, however, centres in what are now termed "executory contracts," in which a period of time elapses between the making and the fulfilling of the agreement. In connection with time transactions arose the questions which have given modern legal tender its main importance. In the sixteenth century began the commercial awakening which led inevitably to demands for freedom from governmental interference; and for the development of legal means intended to enforce the payment of debts. Modern legal-tender provisions, therefore, originated in connection with the development of legal actions for debt.[1] The essence of "debt" is a contract having a time element.[2]

Executory, or time contracts.

As in the Roman Law,[3] so to the mediæval mind, every commodity, every service, was supposed to have a money equivalent. "Though the English law of contract was not fully developed before the time of Henry VIII., the action of debt which lay to recover a sum of money

First use of "tender."

[1] This lends interest to the following phrase in the reference to the legal tender of coins in an early coinage act of the United States (Feb. 9, 1793): "Shall be a legal tender for the payments of all debts and demands," etc.

[2] This at once raised the questions connected with the standard of deferred payments discussed in chap. iii., *supra*.

[3] Miss Breckinridge cites, Poste's Gaius, Institutes (3d ed.), pp. 340–341: "However diversified may be the object of an obligation, it is always transferable in the eyes of the law into the payment of a certain sum of money."

was one of the early actions developed, being in use at least as early as the time of Henry I.;[1] and it is from one of the pleas allowed in defence to such action that we have the word 'tender.' The debtor could, of course, discharge his obligation by payment of the sum claimed; but sometimes, when there was dissatisfaction on the part of the creditor, he could acquit himself by tender to the creditor of the amount admitted by him as due, and, on the refusal of the creditor to receive it, by its payment into court, leaving with the court the question of its adequacy.

"The doctrine of the law as finally developed was that for every wrong involved in breach of contract there was, as in case of goods and services, a money equivalent, a money compensation; only in so far as the parties, by the payment of money damages, could be put into the position in which they would have been had there been no breach, did the common law attempt to give relief. Herein lay one of the deficiencies of the common law, which led to the development of the Court of Chancery, granting equity jurisdiction and giving remedy not by money damage, but by requiring specific performance of the contract."[2] Prior to Elizabeth's reign, there seems to have been no question of the power of the Crown to alter the current coin and thus affect contracts. The general situation is shown by the first great legal-tender case in 1602, the case of "mixt monies," on which the present English law of tender is based:[3]

Relief in chancery courts.

"*April*, *43 Eliz.*, *Brett* bought wares of one *Gilbert* a merchant in London, and he came bound to him in 200 l. conditioned for the payment of one hundred pound *Sterling* current and lawful money of *England* in *September* following at *Dublin* in Ireland: the 24th May, *43 Eliz.*, the queen sent to *Ireland* certain mixt money from the

Case of "mixt monies."

[1] Glanvil (Book X, chap. iii, Beame's translation), who wrote during the reign of Henry II. (1154–1189), describes "debt" as a conception already clearly defined.

[2] Breckinridge, *op. cit.*, chap. iv.

[3] See Breckinridge, *ibid.* The quotation is from Sir Matthew Hale, *op. cit.*, I, 192, as reported by Sir John Davis.

tower of *London* with the usual stamp and inscription, and declared by her proclamation, that it should be lawful and current money of *Ireland*, *viz.* a shilling for a shilling, and sixpence for sixpence, and that accordingly it should pass in payment, and none to refuse, and declared that from the 10th of *July* next all other money should be decried and esteemed only as bullion and not current money. Upon the day of payment *Brett* tendered the 100 l. in this mixt money, and resolved on *great consideration* that the tender was good, the place of payment being in Ireland and the day of payment happening after the proclamation was made; that altho this were not in truth *Sterling* but of a baser alloy, nor a money current in *England* by the proclamation, yet the payment being to be made in Ireland, it was, as to that purpose, current money of *England*; but if the day had been passed before the proclamation, then he must have answered the value as it was when payment was to have been made."

The question whether a contract should be regarded as legally fulfilled by the tender of money current at the time of making the contract, or that current at the time of payment, was squarely decided in favor of the latter.

"From this it is clear that, as to obligations enforceable at law, all money issued as lawful money was legal tender; and in these the debtor, as the buyer in cash transactions, was given the choice as to which of several kinds of coins he would employ."[1]

In executed contracts the mode of enforcing the right of the buyer in cash transactions was a penal sanction; in the case of time transactions, the sanction was the power of the court to declare the obligation fulfilled as between parties, being a civil, as opposed to a penal, sanction.

To what extent the Crown used its power over the coinage may be seen in general by what follows. When both gold and silver coins were issued, both became, as a matter of course, legal tender, and the seller had to receive them, under threat of heavy penalties, at the rate fixed by the Crown.

[1] Breckinridge, *op. cit.*, chap. iv.

But to about 1300, payments were often made by weight instead of by tale, and to that extent such payments were not affected by legal-tender powers. At the time of the Conquest the standard was the silver Tower (or Saxon) pound, weighing 5400 grains, $\frac{37}{40}$ fine (*i. e.*, 11 oz. 2 dwt. of silver and 18 dwt. of alloy). In 1527 Henry VIII. substituted for it the Troy[1] pound of 5760 grains (divided into 20 shillings, and each shilling into 12 pence, or sterlings). The same monarch changed the standard at various times,[2] but in 1560 Elizabeth restored it to $\frac{37}{40}$, which has since remained the standard fineness of English silver coin.

English usage as to gold and silver coins.

In 1257 Henry III. tried the unpopular experiment of coining gold, in the form of pennies, $\frac{1}{100}$ fine.[3] A century later, they were coined at $\frac{1}{192}$ fine, and continued thus to 1527. Actuated by a desire to facilitate the trade with Flanders, Edward III. failed in an attempt to introduce gold coins, called nobles, in 1344, but soon after that time their acceptance was made obligatory. Henry VIII. first coined "crown" gold, $\frac{1}{192}$, or $\frac{1}{12}$ fine. After many successive changes, the Crown standard finally prevailed, and in 1730 the few gold coins of the old fineness were declared uncurrent.

Both the silver and gold coins were changed in weight by almost every sovereign, but after 1601 no intentional debasements of the silver coinage occurred.[4] The changes in the weight of the gold coins were chiefly made for the purpose of securing a concurrent circulation of gold and silver. The difficulties of adjusting the ratios of gold and silver, and of those arising from counterfeiting and clipping, then followed.

Finally, in 1774, in order to prevent the importation of short-weight silver coins, the first really modern legal-tender

[1] Arnold's Chronicle, p. 108.

[2] In 1543, $\frac{10}{12}$; in 1545, $\frac{6}{12}$; in 1546, $\frac{4}{12}$; in 1552, $\frac{3}{12}$; in 1553, $\frac{2}{12}\frac{1}{2}$.

[3] The penny was $\frac{1}{15}$ of the Tower pound, and it was declared current at the value of 20 silver pennies. Finally, after protest, no one was forced to take them.

[4] In 1816 the pound Troy was divided into 66 silver shillings.

act was passed. It was enacted that no tender for the payment of money in silver coin should be allowed in sums exceeding £25, except by weight at the rate of 5*s.* 2*d.* per ounce of standard silver. This act, originally passed for two years, was continued until 1783; lapsed until 1798; and was then continued until 1816, when the legal-tender power of silver coins was reduced to sums not over £2. In that year gold was made the sole standard with unlimited legal-tender power.

First legal-tender statute.

Before 1346 it appears that the Crown and nobles had sometimes insisted on payment in superior coins, while their people had to receive inferior ones, in payments at the rates stated in general proclamations; but, in general, no exceptions were made in favor of the royal revenues.[1] In 1504, and again in 1526,[2] the proclamations as to current coins made them receivable equally by the King's officers as by the people. That is, even under Henry VIII., in debasements of the coinage there seems to have been no purpose on the part of the Crown merely to obtain a gain at the expense of the public.[3]

King's revenues touched by legal tender.

The belief has been sometimes expressed[4] that legal-tender

[1] In 1689, when James II.'s struggle was becoming desperate, he excepted his "brass money" from payments of customs and excise on importation of foreign goods. Compare the similar exception of greenbacks in our Civil War.

[2] Ruding, Annals of the Coinage of Britain and its dependencies from the earliest period of authentic history (London, 1817), II, pp. 59, 78.

[3] "The coinage was often, no doubt, in the earlier period, impaired by clippers and sweaters, and was much debased during the anarchy of Stephan's reign, when every powerful baron issued a coinage of his own. But always, both in Saxon and Norman times, the Crown, on the restoration of its authority, directed its first energies to the restoration of the silver coinage, and always brought it back both to its original weight and its original standard." P. 74, cf. pp. 86–88.

"Up to Henry VIII.'s time the English kings never resorted to depreciations with the object of raising money. Ruding's tables of the seigniorage show that the Crown made no more out of the silver coinage when the sterling penny was at 18 or even at 12 grains, than it did when it was at 22. These depreciations seem to have been forced upon the country, as the later French depreciations were, by the necessity that was felt for protecting the stores of the precious metals." Pp. 101–102. W. W. Carlile, Evolution of Modern Money (1902).

[4] "I came to the conclusion that no decree and no statute of legal tender could ever have originated anywhere except for the purpose of forcing a debased

decrees or acts originated in the desire of governments to use such powers in the furtherance of their own selfish gain. The preceding history, however, shows that coins uttered by the mint became a legal tender, whether debased or not; evidently the quality of being a tender did not originate in the desire merely to push inferior coins into circulation. Nor, as was remarked before, does it appear that the royal revenues were, in general, excepted from the inclusive powers granted to current money, be it good or bad. The unlimited power over the coinage was vested in the Crown, and any money created thereby became lawful money; it was not made lawful in order to force it into circulation.

Legal tender for debts originated in the popular movement.

As regards the enforcement of time contracts, the evolution of legal tender, instead of originating with the Crown, was an outcome, on the contrary, of the movement for more rights by the people. The growth of the commercial and industrial interests of England in the sixteenth and seventeenth centuries, the increased influence of the towns and the trading classes, naturally led to the greater use of time contracts, and consequently to an insistence on legal means of obtaining an enforcement of their provisions. Ordinances governing the kind and quality of money which could be collected in an action of debt were the means demanded by the middle classes for protecting private rights. As yet the Crown had not been obliged to conform to the ethics of the tradesmen in such transactions. In fact, the original and accepted power of the Crown to alter the weight, standard, and denominations of the coinage was a part of mediæval conceptions of kingly power, which the centuries gradually brought

coin into circulation, or for the purpose of collecting a forced loan by making paper substitutes for coin a legal tender for debts. That hypothesis, based wholly upon *a priori* reasoning, seems to be fully sustained by the facts of history so far as I can learn about them. I have not yet been able to find either a student of jurisprudence, or a student of history, or a student of legislation, who can tell me when, where, and why the conception of a legal tender decree or statute originated." Edward Atkinson, Methods of Investigation in Monetary Science (1894), pp. 4–5.

to accord with the rights and industrial needs of the people, in the same way that excessive power of the Crown in other ways was insensibly shared by the people. The economic development brought with it freedom of contract; and with this necessarily came proper means of legally enforcing payment for such obligations entered into between individuals. It could not have been otherwise. The necessity of having a means of enforcing agreements in the courts was the essential element in legal-tender requirements; and this legal protection originated in the interests of the merchant and the business community, and not in those of the Crown. It was a part of the evolution of the action for debt. In short, legal-tender rules are necessary to the legal interpretation of all contracts, and their origin is to be found in the rise of popular privileges. Whenever a government, whether unlimited, parliamentary, or republican, takes advantage of its sovereignty to use legal-tender enactments to the injury of its citizens, it is exposed to no less and no more criticism than when it abuses its power over the peace; and its turpitude in such a case can be judged by evident rules of public justice and morality, without carrying with it the condemnation of all power (such as a legal tender) in the enforcement of contracts which is bound up with the usual operations of modern commerce.

§ 3. The English common law was, of course, recognized as the basis of colonial jurisprudence. The Crown exercised executive and legislative power over the colonies in general through the Privy Council. To the time of the third George, the administration of the dependencies had been arbitrary and offensive; and (from 1696) the channel of communication between the colonies and the Crown was the Board called the Lords of Trade and Plantation. Meanwhile representative assemblies[1] had arisen in the col-

Colonial governments.

[1] In Virginia, 1619; Massachusetts, 1634; Plymouth, 1639; Connecticut, 1639; Maryland, 1639; Rhode Island, 1647; North Carolina, 1667; New Jersey, 1668; South Carolina, 1674; New Hampshire, 1680; Pennsylvania, 1682; Dela-

onies, which, with the governor and his council, also exercised the law-making power. The power of Parliament to enact laws for the colonies was claimed by the home government, but denied by the colonists.

The power of the Crown over the coinage, however, was clearly admitted; and the English law of contracts, including that of debt and tender, was also recognized in the colonies. The circumstances of a new settlement obviously made a difference in the application of these general principles of legal tender. In England the community had accumulated the means to carry on exchanges by the machinery of money; while in the rude conditions of the colonies there was not wealth to spare for a money system, and barter was long the rule.[1] Hence the questions of legal tender, in the early colonial period (prior to 1764), had to do at one time or another with the primitive forms of money, such as wampum, corn, skins, bullets, live-stock, fish, tobacco, and boards. The regulations were of two kinds: (1) those concerned with taxation and the manner of payment, and (2) those prescribing the relations of debtor and creditor.

Characteristics of colonial legal tender.

The experiences of all the colonies were much the same in general; and in New England Connecticut, Rhode Island, and New Hampshire generally followed the course of Massachusetts at a short distance of time. Hence the events in Massachusetts are typical of all.

(I) Previous to 1652 the chief medium of exchange was wampum,[2] although the standard seems to have been silver. Corn also rivalled wampum; and in the first legal-tender law in New England, in 1631,[3] corn was ordered in Massachusetts to pass in the payment of all debts at the usual

ware, 1682; New York, 1683; Georgia, 1754. Frothingham, The Rise of the Republic of the United States (6th ed.), p. 18.

[1] Cf. *supra*, chap. xi, § 6.

[2] See Weeden, Economic and Social History of New England, I, 39. One fathom of shell money was worth 5 shillings.

[3] Hutchinson, History of Massachusetts from the first settlement thereof in 1628 until the year 1750 (3d ed.), I, 31.

market rate, unless money or beaver had been expressly named in the contract. Bullets were counted equal to a farthing; while corn and livestock were receivable at the treasury for taxes. This legislation lasted fifty years. Not long after, in 1643, wampum was made a legal tender for any sum not exceeding 40 shillings (black at four, and white at eight pieces to a penny). Other colonies had similar laws.

Experience of Massachusetts before 1652.

"Thus, although in England there were no so-called tender laws, because that quality was possessed by coin issued from the royal mints, and declared by proclamation to be lawful money and by such coin only, — in the new World, at an early date, legal tender enactments were adopted, and the theory prevailed that such a quality had to be expressly conferred upon an article which could be used in satisfaction of a debt." [1]

Precedents for expressly conferring legal tender in colonies.

In the mother country the standard metals were also the media of exchange, and gold and silver were without question made the legal tender for the satisfaction of debts; in the colonies, on the other hand, almost none of the standard metals existed, and the variety of media of exchange brought into use necessitated a different attitude in regard to what should be legal tender. In effect, the method adopted was a rough and ready way of sanctioning an offset of goods against goods, in cases of debt, when little of the conventional medium of exchange could be had. It was a step higher than barter, because the functions of money were understood and regarded. This custom, however, of expressly conferring the legal-tender quality, and assuming that a money on which it was not expressly conferred did not have it by precedent, has prevailed throughout American history and colored our legislation accordingly.

(II) In the period from 1652 to 1690 progress was made towards a metallic money, although there was no gold and little silver in use. Through the West Indian trade foreign coins came in; and Massachusetts legitimated the Dutch

[1] Breckinridge, *op. cit.*, chap. vi.

ducatoon at 6 shillings, and the rix dollar and the piece of eight at 5 shillings. More than that, — what must be admitted to be a treasonable act, — came the erection of a mint by Massachusetts in 1651, and the coinage of "pine-tree" shillings.[1] It was ordered that these coins should be the only "current" money of the commonwealth, except English. These shillings became the general unit of account, although few remained in use at home (being exported). The inadequacy of metallic money demanded legislation for payment of contracts drawn in terms of money by corn, cattle, fish, boards, etc.[2] In 1670 contracts for specie were made payable in specie.[3] Finally, the mint was forcibly closed by a revocation of the charter.

Treasonable establishment of a mint.

(III) In the period from 1690 to 1752 the overthrow of the mint led to paper-money issues. The first colonial bills of credit, to the amount of £7000, were emitted in 1690, and were practically fiat money[4] without reserves for their redemption, but not a legal tender. Of course they depreciated in spite of declarations that their quantity should be limited. Then came the now familiar sophistry: since the depreciation exists, value might be given them by the legal-tender quality. Hence, in 1692, it was enacted that the notes should "pass current within this province in all payments equivalent to money;"[5] but, more

First issue of colonial bills of credit.

[1] Nominally they contained 16⅔ per cent less of silver than the English coins; but because of rude processes of manufacture, really 22½ per cent less. In London they were at a discount of 25 per cent. Cf. W. G. Sumner, Yale Review, Nov., 1898, and A. M. Davis, Currency and Banking in the Province of the Massachusetts Bay, Part I, chap. ii.

[2] Connecticut recognized the Massachusetts currency as legal tender, and in 1683 rated foreign coins by it.

[3] *E. g.*, Acts of 1654 and 1657.

[4] One of the notes reads as follows: "No. 2161. 10s. This indented Bill of Ten Shillings due from the Mass. Colony to the Possessor, shall be in value equal to money, and shall be accordingly accepted by the Treasurer, and received subordinate to him, in all public payments, and for any stock at any time in the treasury. Boston, in New England, December 10, 1690. By Order of the General Court." [Signed by the Committee.] Felt, An Historical Account of Massachusetts Currency, pp. 50, 52.

[5] *Ibid.*, p. 51.

than that, they were made receivable for public payments at an advance of 5 per cent, as often as they were brought to the treasury. This last provision gave them a quasi-redemption, and for twenty years these notes (known as "old charter bills") remained at par.

In 1702, £10,000 more were issued with an honest intention to redeem them, and a special tax was levied for that purpose. But the difficulty of distinguishing between fiscal and monetary operations of the government soon led to disaster, in spite of attempts of the mother country to control the colonies.[1] War loans were made not by borrowing, but by using the currency as a fiscal machine. The taxes intended for redemption were suspended; the period of redemption was postponed. The folly spread; and finally almost no restraint was put upon the issues.[2] In 1727 the depreciation had gone so far that an act of partial repudiation was passed[3] scaling debts, — the last issues being valued at 53 per cent less than the earlier ones. To cap the climax, in 1731, a stringent legal-tender act was forced through, requiring creditors, except in case of special contracts, to receive the bills at par.[4]

Value of paper money not kept by legal tender.

The depreciation and confusion were increased by the fact that the other New England colonies had followed the example of Massachusetts. The controversies between the colonies and the Crown were long and bitter. A resolute attempt[5] to get out of the slough was finally aided

Redemption in 1750.

[1] Cf. Royal Proclamation of 1704; act of Parliament in 1707; and the prohibition of bills of credit in 1727.

[2] *E. g.*, 1709, £30,000; 1711, £10,000; 1714, £50,000; 1716, £100,000; 1721, £50,000.

[3] Felt, An Historical Account of Massachusetts Currency, p. 83.

[4] It is to be noted that £710,000 of private paper, not a legal tender, circulated at a value 33 per cent higher than the colonial bills; and £120,000, also not legal tender, at par. Felt, *ibid.*, p. 107.

[5] The Equity Bill of 1742 estimated silver at 6*s.* the ounce, and required that all bills afterwards emitted should be rated the same; debts contracted within five years to be payable in such notes, special contracts excepted; if the bills depreciated, due allowance was to be made. (Felt, *ibid.*, p. 111.) It had little beneficial results. Cf. enactments of December, 1744.

by a payment in cash by the mother country to the colonies for the share of the colonies in the successful operations against Cape Breton in 1745. On March 31, 1750, the notes were redeemed in specie at fixed rates.[1] After March 31, 1752, all debts were to be payable in coin at the rate of 6*s.* 8*d.* the ounce of silver. The story of the other New England colonies, although worked out in slightly different ways, was very similar to that of Massachusetts.

Opposition to mother country in regard to legal tender.

The home government began to assert its authority in 1749, and the next session peremptorily cut off from the colonies the right to issue bills of credit, or even to make the bills issued for temporary emergencies legal tender. It is worth noting that a stable currency[2] seemed to follow this parliamentary prohibition. The colony of Massachusetts in 1762 actually braved the royal prerogative by making gold a legal tender.[3] In 1763 Rhode Island declared gold and silver alone as lawful money in payment of debts. Soon a similar course was followed in other New England colonies; and much the same situation obtained in New York and Pennsylvania.

Tobacco in Virginia.

In Virginia[4] and Maryland tobacco had been made a legal tender in the seventeenth century. In 1633 contracts were to be reckoned in English money, but to be paid in tobacco. When, in 1639, the crops of tobacco were everywhere very abundant, the Assembly ordered one-half of the crop to be burned; and that, to save the debtor from the enhanced standard, the creditor should take £40 for £100.

In North Carolina the lack of specie required the use of

[1] A piece of eight (a dollar) = 4*s.* 6*d.* English money = 45 shillings "old tenor" (issued before Feb. 4, 1737) = 11*s.* 3*d.* "middle tenor" (issued between last date and March 4, 1740) and "new tenor" (issued after March 4, 1740).

[2] In 1751 Massachusetts issued one-year certificates known as "province notes," paying interest, and maintained at par by taxes. These are the natural ancestors of the United States Treasury notes of the War of 1812.

[3] One grain = 2½*d.*

[4] Virginia did not issue paper money until 1755. Ripley, The Financial History of Virginia (1609–1776), p. 109.

corn, pork, pitch, and tar in its place. Their prices were regulated by law; and in 1715 any one of seventeen commodities was made a legal tender, and the barter currency was receivable for taxes. Here was to be found a paradise for Gresham's Law, not acting merely on two standards, but on seventeen, or even more in later years.[1] Obviously the cheapest commodity was used in payment of debts.

Many articles legal tender in North Carolina.

§ 4. Untrammelled by the authority of the Crown and Parliament, the colonies, during and after the War of the Revolution, were able to follow their own devices. The people could not endure heavy taxation, and capital was not obtainable by so feeble a government as that of the Confederation. The Articles of Confederation gave the Continental Congress the sole and exclusive right and power to regulate the alloy and value of coins struck by their own authority or by that of the various states. For the exercise of the power to coin money, borrow money, and emit bills of credit, the consent of nine states was necessary.[2] The Congress, moreover, could not, of itself, make the bills legal tender.[3]

Continental Congress could not make bills legal tender.

[1] Cf. Bullock, Essays on the Monetary History of the United States, p. 126. Special contracts were excepted by the law; and the commodities had to be in good condition.

[2] The articles of Confederation on these points are as follows:

"The United States, in Congress assembled, shall also have the sole and exclusive right and power of regulating the alloy and value of coin struck by their own authority, or by that of the respective states: etc.

"The United States, in Congress assembled, shall have authority to . . . borrow money or emit bills on the credit of the United States, transmitting every half-year to the respective states an account of the sums of money so borrowed or emitted: etc.

"The United States, in Congress assembled, shall never . . . coin money; nor regulate the value thereof; nor . . . emit bills; nor borrow money on the credit of the United States; nor appropriate money; . . . unless nine states assent to the same." (Articles of Confederation, Art. IX.)

[3] Consult Marshall in the case of Craig *v.* Missouri (4 Pa. 410), which is of great importance as showing that to emit bills and to give them the legal-tender quality were distinct operations.

The confusion between the fiscal and monetary functions of government led the Continental Congress, after great hesitation and long discussion (June 22, 1775) to issue $2,000,000 bills of credit, for whose redemption the "faith of the colonies" was pledged. The notes were inconvertible from the start, and as to ultimate redemption "faith" is but a poor substitute for specie reserves. The hope that the separate colonies would levy taxes to take up the notes was never fulfilled. On the recommendation of Congress (January 14, 1777) the individual states made them legal tender; but it had no perceptible influence. The separate states, moreover, emitted bills of their own, and most of them were made legal tender.[1] But did the legal-tender power protect them? As every one knows, more and more Continental bills were issued, and great and ruinous depreciation followed.

Legal tender did not protect continental bills.

The most extreme measures were taken to regulate prices[2] and impose penalties, after the manner of despotic governments, under a false theory that the value of the paper could be thus protected. The following resolution of the Pennsylvania Committee of Safety is worth repetition as an example of this kind of thing:

> "Resolved that any person who shall refuse to take continental currency in payment of any debt or contract whatsoever or for any goods or commodity offered for sale, or shall ask a greater price for any commodity in such continental currency than in any other kind of money or specie shall for the first offence be considered a dangerous member of society and forfeit the debt or goods contracted for, to the person who contracted for the same, and shall moreover be subject to a penalty of five pounds, etc., and for the second

Pennsylvania Resolutions.

[1] Rhode Island in August, 1775; North Carolina in 1775; New Hampshire in June, 1776; Virginia in July, 1776; New Jersey in August, 1776; Massachusetts in December, 1778.

[2] Massachusetts, Jan. 28, 1777, fixed the price for each of fifty-two articles (Felt, *op. cit.*, p. 170). The points made in the protest of the minority in Pennsylvania are admirable, and proved by later history to be wholly sound. Cf. Phillips, II, 189.

offence, they shall be subject to the afore mentioned penalties and be banished this state to such place and in such manner," etc.[1]

It must have been a sadly inferior money to need such drastic support as this; and it is pathetic to think that after all the possible resources of legal-tender laws and penalties had been drawn upon, the continental notes so depreciated that they have become a synonym for an absolutely worthless thing. Nothing could better show that measures for redemption are vital to any paper money. On March 18, 1780, in asking for a contribution from the several states, Congress itself estimated — in regard to its own issues — that one dollar of specie was the equivalent of forty dollars of continental bills! The issuer was aiding in the repudiation of its own notes. Congress even asked the states to readjust the legal-tender provisions of the continental currency to suit the depreciation. Finally, the climax of dishonor was reached on June 7, 1783, when a resolution, proposing to redeem the notes at the rate of 40 to 1 in specie, was lost on the ground that the required sum was too large to be raised.

Repudiation by Congress.

One would suppose that the experience of the Continental bills would have forever warned the people against the repetition of any such folly. But it is amazing to read of the early rise of political parties, especially in Pennsylvania, North Carolina, and Rhode Island, created to urge the issue of more paper money.

As to metallic money, there is no evidence that the Confederation accepted, or rejected, the old English precedent that the issue, or adoption, of coins necessarily carried with it the quality of legal tender; because the Confederation had no coinage system of its own. During the war any metallic currency formerly possessed had been driven out by the depreciated paper money.

In 1781 the Board of Treasury, who had the control of the finances during the war under the direction of Congress, was

[1] Phillips, History of Bills of Credit in the United States, II, p. 63.

replaced by a Superintendent of Finance. To this office Robert Morris was appointed. In his report[1] in favor of establishing a uniform coinage for the country, he recalled the fact that the monetary units were almost as many as the states themselves; that the commonest transactions were intricate and delicate; and that there was great inconvenience arising from a lack of a just legal tender. This last, he said, was "as necessary for the purposes of jurisprudence as a judicial currency for those of commerce." His remedy was the adoption of the single silver standard; but the question of a just legal-tender coin necessarily carried with it the selection of a standard coin which should harmonize with existing contracts, and with the values of the coins used in the various states. The Spanish dollar was the starting-point; the question of difficulty was the rating of the various shillings in this dollar.[2] The unit suggested by Morris ($\frac{1}{1440}$ part of a dollar) being too small, Jefferson's suggestion of the dollar as a unit (with decimal subdivisions) was adopted in 1784. July 6, 1785, a Spanish dollar of 385.72 grains fine silver (and 31.75 grains alloy) was chosen. August 8, 1786, a dollar of 375.64 grains fine silver (and $\frac{1}{12}$ alloy) was adopted. Although a mint was provided for by a resolution of October 16, 1786, no coins were ever issued by the Confederation, and the legal-tender question raised, by the adoption of dollars of different weights at the above dates, had no practical significance.

Schemes for metallic money under the Confederation.

§ 5. In the formation of the United States and the adoption of the Constitution we reach the questions of legal tender which underlie our present legal and commercial activities. The interest centres in the provisions applying (1) to metallic money, (2) to the issues

Constitutional Convention.

[1] American State Papers, V, 101.

[2] In North Carolina and New York the dollar was equal to eight shillings (hence in those states to-day, the shilling is 12½ cents); in Georgia, five; in Virginia and the New England states, six (hence the present reckoning of a shilling there at 16⅔ cents); in South Carolina at 32*s.* 6*d.*; and in other states at sevensixths.

of the states, (3) to bank notes, and (4) to government paper money. The provisions of the Constitution, and their origin and interpretation in the Constitutional Convention (which met in May, 1787), are fundamental to all these parts of the subject.

Of the two propositions early laid before the Convention, that by Randolph[1] made no mention of the coinage power, while that of Pinckney did. The latter, after the debate had lasted to July 24, was referred to a Committee of Detail. August 6 this Committee reported a constitution in which Article VII. is almost the same as in Pinckney's original draft:

Pinckney's draft.

Art. VII., Sec. 1. "The legislature of the United States shall have the power

4) To coin money;
5) To regulate the value of foreign coin;
8) To borrow money and emit bills on the credit of the United States.
12) To declare the law and punishment of . . . counterfeiting the coin of the United States" . . . etc.

Art. XII. contains the prohibition on the states introduced by the Committee: "No state shall coin money," etc.

Art. XIII. "No State, without the consent of the legislature of the United States, shall emit bills of credit, or make anything but specie a tender in payment of debts," etc.

The following is the full report of the debate as given by Mr. Madison:[2]

Debate on legal tender.

MR. GOUVERNEUR MORRIS [Pa.] moved to strike out "and emit bills on the credit of the United States." If the United States had credit, such bills would be unnecessary; if they had not, unjust and useless. MR. BUTLER [S. C.] seconds the motion. MR. MADISON [Va.]. Will it not be sufficient to prohibit the making them a *tender?* This will remove the temptation to emit them with unjust views; and promissory notes, in that shape, may in

[1] Elliot's Debates, I, p. 143. [2] *Ibid.*, V, p. 434.

some emergencies be best. MR. GOUVERNEUR MORRIS. Striking out the words will leave room still for notes of a *responsible* minister, which will do all the good without the mischief. The moneyed interest will oppose the plan of government, if paper emissions be not prohibited.

MR. GORHAM [Mass.] was for striking out without inserting any prohibition. If the words stand, they may suggest and lead to the measure.

MR. MASON [Va.] had doubts on the subject. Congress, he thought, would not have the power, unless it were expressed. Though he had a mortal hatred to paper money, yet, as he could not foresee all emergencies, he was unwilling to tie the hands of the legislature. He observed that the late war could not have been carried on, had such a prohibition existed.

MR. GORHAM. The power, as far as it will be necessary or safe, is involved in that of borrowing.

MR. MERCER [Md.] was a friend to paper money, though, in the present state and temper of America, he should neither propose nor approve of such a measure. He was consequently opposed to a prohibition of it altogether. It will stamp suspicion on the government, to deny it discretion on this point. It was impolitic, also, to excite the opposition of all those who were friends to paper money. The people of property would be sure to be on the side of the plan, and it was impolitic to purchase their further attachment with the loss of the opposite class of citizens.

MR. ELLSWORTH [Conn.] thought this a favorable moment to shut and bar the door against paper money. The mischiefs of the various experiments which had been made were now fresh in the public mind, and had excited the disgust of all the respectable part of America. By withholding the power from the new government, more friends of influence would be gained to it than by almost anything else. Paper money can in no case be necessary. Give the government credit, and other resources will offer. The power may do harm, never good.

MR. RANDOLPH [Va.], notwithstanding his antipathy to

paper money, could not agree to strike out the words, as he could not foresee all the occasions that might arise.

MR. WILSON [Pa.]. It will have a most salutary influence on the credit of the United States, to remove the possibility of paper money. This expedient can never succeed while its mischiefs are remembered; and, as long as it can be resorted to, it will be a bar to other resources.

MR. BUTLER [S. C.] remarked, that paper was a legal tender in no country in Europe. He was urgent for disarming the government of such a power.

MR. MASON [Va.] was still averse to tying the hands of the legislature *altogether*. If there was no example in Europe, as just remarked, it might be observed, on the other side, that there was none in which the government was restrained on this head.

MR. READ [Del.] thought the words, if not struck out, would be as alarming as the mark of the beast in Revelation.

MR. LANGDON [N. H.] had rather reject the whole plan than retain the three words, "and emit bills."

On the motion for striking out, the vote stood nine yeas to two noes, and the clause as amended was adopted.[1] Virginia voted yea, because Mr. Madison "became satisfied that striking out the words would not disable the government from the use of public notes, as far as they could be safe and proper; and would only cut off the pretext for a *paper currency*, and particularly for making the bills a *tender* either for public or private debts."[2]

Votes on legal-tender clause.

On August 28, Article XII. was taken up. As proposed by the Committee of Five it read:

> "No state shall coin money; nor grant letters of marque and reprisal," etc.

Article XIII. read:

> "No state, without the consent of the legislature of the United States, shall emit bills of credit, or make anything but specie a tender in payment of debts;" etc.

[1] Elliot's Debates, I, p. 245.

[2] Cf. Elliot, *ibid.*, V, p. 435, note.

MR. WILSON [Pa.], and MR. SHERMAN [Conn.], moved to insert after the words "coin money" [in article 12] the words, "nor emit bills of credit, nor make anything but gold and silver coin a tender in payment of debts;" making these prohibitions absolute, instead of making the measure allowable as in the 13th article, *with the consent of the legislature of the United States.*"[1]

MR. GORHAM [Mass.] thought the purpose would be as well secured by the provision of article 13, which makes the consent of the general legislature necessary; and that, in that mode, no opposition would be excited; whereas, an absolute prohibition of paper money would rouse the most desperate opposition from its partisans.

MR. SHERMAN thought this a favorable crisis for crushing paper money. If the consent of the legislature could authorize emissions of it, the friends of paper money would make every exertion to get into the legislature in order to license it.

Votes on prohibition to states.

On the first part of the question ("nor emit bills of credit") eight states voted aye, one (Va.) no, and one (Md.) was divided; on the second part ("nor make anything," etc.) the vote of eleven states present (including New Jersey) was unanimously in favor of it.

The form of these various measures, as finally adopted in the Constitution, reads as follows:

"Art. I. Section 8. The Congress . . . shall have power . . .

2) To borrow money on the credit of the United States.

5) To coin money, regulate the value thereof, and of foreign coin, and fix the standard of weights and measures.

6) To provide for the punishment of counterfeiting the securities and current coin of the United States.

"Art. I. Section 10. No state shall . . . coin money; emit bills of credit; make anything but gold and silver coin a tender in payment of debts," etc.

[1] Elliot's Debates, V, p. 484.

Different interpretations[1] were put upon the result; especially by two such persons as Luther Martin[2] and Alexander Hamilton.[3] In summing up the opinions expressed in the debate on striking out the clause "to emit bills of credit," etc., one must agree with the following conclusion that:

> "There was a strong and almost universal dread of paper issues; that there was as strong, though not quite so unanimous, a dread of too narrowly limiting the hands of the new legislature; and that there was neither a very clear nor a unanimous view as to the extent of the power granted, or its relation to the power to issue paper currency and to that of making such currency a legal tender."[4]

§ 6. The new government under the Constitution, of course had the right to coin gold and silver, or any other metal, into money; it had the special power "to coin money and regulate the value thereof and of foreign coin." No specific grant of the power to make its coins a legal tender was mentioned. According to English precedent, the coinage of money by the Crown carried with it, as we have seen, the legal-tender quality; a change in the value or denomination of the coins could be

Status of legal tender for coins under the new government.

[1] In the South Carolina ratifying convention, Pinckney said: "if paper money should become a necessity, the general government will still possess the power of emitting it," etc. Elliot's Debates, IV, p. 335.

[2] "A majority of the Convention, being wise beyond every event, and being willing to risk any political evil rather than admit the idea of a paper emission in any possible case, refused to trust this authority to a government," etc. Elliot, *ibid.*, I, p. 369.

[3] He thought the spirit of the prohibition to the states ought not to be disregarded by the government of the United States; implying a reason why Congress should be wise in the exercise of a dangerous power allowed to it.

[4] Breckinridge, *op cit.*, chap. viii. Cf. also, J. B. Thayer, Legal Tender, Harvard Law Review, May, 1887, pp. 76–78.

The opinion of Mr. Bancroft that "each and all [the speakers] understood the vote to be a denial to the legislature of the United States of the power to emit paper money" (Plea for the Constitution wounded, etc, p. 49) is far from being accurate. There was no question as to their denial of the power to the states but they were afraid to go so far in regard to the federal government.

made without altering their legal-tender quality. But, in the colonies, only those forms of money had the legal-tender power upon which it had been expressly bestowed. Under the Confederation only the individual states conferred the power, both upon coins and bills of credit. Yet, in forming the Constitution, the separate states gave up their right to make bills of credit a legal tender, or to give that quality to any thing other than gold or silver coin. The central government of limited powers, created by these states, yet supreme within its own sphere, assumed that it possessed some at least of the traditional English attributes of sovereignty in regard to coinage. The general power to give the legal-tender quality to coins seems to have been taken for granted by general consent;[1] although the colonial method of making a specific mention of the coins to which this quality was given seems to have been generally followed. In this respect the English precedent did not rule. The mere fact of the issue of coins by the sovereign power, without a special mention of the grant, did not give money in the United States a legal-tender quality.[2]

Power to make coins legal tender assumed.

In the first coinage act[3] of April 2, 1792, and which established a mint, the legal-tender phraseology is as follows:

First legal-tender act, 1792.

> Sec. 16. ". . . That all the gold and silver coins which have been struck at, and issued from the said mint, shall be a lawful tender in all payments whatsoever," etc.

In view of the insufficiency of metallic money, and of the time required to establish a mint and strike coins, certain

[1] Mr. Williams, on Dec. 14, 1797, raised a doubt as to the power of Congress to declare what should be a legal tender for the states. He held that the states might make a tender of whatever coins they pleased, provided they did it at the value fixed on them by Congress. Annals, 1797–1798, p. 731.

[2] Note the case of trade dollars in existence after their legal-tender quality had been taken away; or the copper coins of 1792.

[3] Details as to the selection of the standard, the use of both gold and silver, the legislation, etc., can be found in my "History of Bimetallism in the United States" (4th ed., 1897).

foreign coins were legalized by the Act of February 9, 1793, by which they were made:

"legal tender for the payment of all debts and demands."

When the concurrent circulation of gold and silver had proved impossible under the ratio of 15:1 established in 1792, a readjustment of the ratio was attempted by the Act of June 28, 1834. The amount of fine gold in the eagle was reduced from 247.5 grains to 232 grains, or 6.26 per cent, in order to bring the mint ratio nearer to the market ratio; while the silver dollar remained unchanged. The law, also, enacted that: Debasement of 1834.

> Sec. 1. "The said gold coins shall be receivable in all payments," etc.
>
> Sec. 3. "That all gold coins of the United States, minted anterior to the thirty-first day of July next, shall be receivable in all payments at the rate of ninety-four and eight-tenths of a cent per pennyweight."

This debasement was more important as involving a principle than as being a cause of practical injustice to creditors; since little or no gold had, in fact, been in circulation for about twenty years before the Act of 1834. The real difficulty arose from impossible attempts to keep both gold and silver in concurrent circulation. But the extreme form in which the right of legal tender was thus exercised served to call public attention to it, and the measure caused more or less protest in Congress.[1] Its importance lay in the fact that a precedent was established for an extreme exercise of mediæval prerogative by the sovereign power of a popular government.

The power to change the weight of the gold coins, while not altering their legal-tender quality, was again exercised in the Act of January 18, 1837, Case of 1837.

[1] Congress. Debates, X, iv, pp. 4665, 4669, etc. Also, Report of Committee appointed June 30, 1832. Mr. Jones (Ga.) said: "I know that some gentlemen believe that when the value of a coin is fixed by Congress it becomes necessarily a legal tender and the courts will so decide," etc. (June 21, 1834, p. 4653).

which changed the fineness of all gold and silver coins from $\frac{11}{12}$ to $\frac{9}{10}$. In this process the gold eagle was changed to 232.2 grains:[1]

> Sec. 9. ". . . And that [silver] dollars, half-dollars, and quarter-dollars, dimes, and half-dimes, shall be legal tenders of payment, according to their nominal value, for any sums whatever."
>
> Sec. 10. ". . . And that for all sums whatever the eagle shall be a legal tender of payment for ten dollars," etc.
>
> Sec. 11. "That the silver coins heretofore issued at the mint of the United States, and the gold coins issued since the thirty-first day of July [1834], shall continue to be legal tenders of payment for their nominal values, on the same terms as if they were of the coinage provided for by this act."

Precedent of 1834 as related to English practice.

If all the sovereign powers allowed to the English Crown of changing the standard coins without changing their legal-tender quality, by executive act, passed over to the sovereign people of the United States, certainly it cannot be assumed that these mediæval powers, capable of great abuse, could be regarded as having passed from the people to Congress except by special grant. The unlimited power of the Crown, which led to the extraordinary abuses of the coinage in the reign of Henry VIII., could certainly not be exercised by Congress under the theory that the right to coin carried with it the right to do everything with the coins permitted to a sovereign under a previous and different form of government — or else the results of our Revolution must have been *nil*. Under our Constitution, Congress could do only what was "necessary and proper" (in Justice Marshall's sense of those words) to carry out the right to coin; and that doubtless would justify conferring legal tender upon the coins. But could this reasoning justify the debasement of the coinage in 1834? In that act we have the assumption by Congress of all the mediæval prerogatives of the Crown which included the power to change the values, or content, of

[1] In 1834 the mint ratio of gold to silver was exactly 1 : 16; in 1837, it became 1 : 15.98+.

any denominations of existing coins, and yet to retain therewith the legal-tender quality granted to the old coins. Without any accompanying aids, a gold coin which had been a full legal tender since 1792 was suddenly debased 6.26 per cent in 1834, and that debased coin was equally made a full and unlimited payment for all debts. Quite apart from the evident economic and moral criticism to be made of this measure, its constitutional justification can be found only in the assumption that the extreme abuses of the unlimited power of the English Crown in the past have been allowed by precedent to a government to which the sovereign people have given only limited powers. Certainly such flimsy constitutional pretexts cannot seriously be used as precedents[1] in the practice of a republican government.

The subsidiary silver coins which had contained the same proportion of fine silver as the dollar piece, had been an unlimited legal tender since 1792. In the Act of February 21, 1853, the fine silver in subsidiary coins amounting to a dollar, in nominal value, was reduced from 371.25 grains to 345.6 grains, or a debasement of 6.9+ per cent. The subsidiary silver coins being now token coins, with a seigniorage of 6.9+ per cent (as compared with the silver, not the gold, dollar), lost by this act their unlimited legal-tender power:

Act of 1853.

> Sec. 2. ". . . That the silver coins issued in conformity with the above section, shall be legal tenders in payment of debts for all sums not exceeding five dollars."[2]

Here, again, the sovereign power used its prerogative to change the weight of existing coins, but it altered the legal-tender quality therewith. In this case, also, the principle was more important than the practical effect; since silver coins, both dollar pieces and subsidiary denominations, had for years been driven from circulation by gold, which at the mint

[1] Cf. Second Legal Tender Decision, 12 Wallace, 457. That the Act of 1834 did impair contracts, see Breckinridge, *op. cit.*, chap x

[2] Raised to ten dollars by Act of June 9, 1879.

ratio was now cheaper than silver. Although silver dollar pieces remained an unlimited legal tender, none were in circulation, so that gold was in fact the only unlimited legal tender in use from this time to the issue of inconvertible legal-tender paper money (1862–1879).

In the codification of the mint laws by the Act of February 12, 1873, although neither gold nor silver was in circulation, gold was recognized as the unit of value:

> Sec. 14. ". . . That the gold coins of the United States shall be a one-dollar piece, which, at the standard weight of twenty-five and eight-tenths grains, *shall be the unit of value.*"

Unit of value in 1873.

The establishment by law of a "unit of value" seems to have no significance, beyond convenience, or in disputed questions of accounting. It is not a legal-tender enactment, but merely a name given to the coin in the monetary system of which other denominations are to be multiples or decimal parts. That is all the mention of the word "unit" in the first coinage law[1] means; it did not in the least modify the fact that in debt-paying quality a silver dollar had the same value as a tenth of an eagle. Likewise, in 1873, the creation of a "unit" in gold did not change the legal-tender power of existing silver dollars; that is, silver dollars were not "demonetized," at least by the reference to the "unit" in the act of that year.

Suspension of silver dollars in 1873.

In section 15 the silver coins to be issued are severally named as follows: a trade dollar[2] (of 378 grains pure silver), the half-dollar, etc. Then it is added: "Said coins shall be a legal tender at their nominal value for any amount not exceeding five dollars in any one payment." Section 17 forbids the issue of any

[1] In the Act of April 2, 1792, in section 9, after enumerating the gold coins (which did not then include the one-dollar gold piece), a paragraph follows, headed: "DOLLARS OR UNITS. — Each to be of the value of a Spanish milled dollar as the same is now current," etc.

[2] This new dollar, being intended only for the trade with the Orient, was made a legal tender only by inadvertence, and this was taken away from it by the Act of July 22, 1876.

other coins than those mentioned. In short, the omission of the silver dollar (of 371.25 grains) from the list was, in my judgment, the very thing which saved its legal-tender power from being reduced to sums not exceeding five dollars;[1] but its omission at least precluded any further coinage of it. Mere cessation of coinage, however, could not be interpreted as in itself taking away a legal-tender quality once specifically granted.

The revision of the statutes, approved June 22, 1874, however, carried with it this inclusive legal-tender provision:

Demonetization of silver dollar in 1874.

Sec. 3586. "The silver coins of the United States shall be a legal tender, at their nominal value, for any amount not exceeding five dollars in any one payment."[2]

This measure clearly removed the unlimited legal-tender power from the silver dollar.

As a result of the first agitation in favor of the coinage of silver dollars, the Act of February 28, 1878 (the so-called Bland-Allison Bill), required the coinage of silver dollars, as described in the Act of January 18, 1837:

Act of 1878.

Sec. 1. "Which coins, together with all silver dollars heretofore coined by the United States, of like weight and fineness, shall be a legal tender at their nominal value, for all debts and dues public and private, except where otherwise expressly stipulated in the contract."[3]

[1] Miss Breckinridge, however (chap. x), raises the question whether, if the principle of interpretation that the enumeration of some is the exclusion of others, applies, the silver dollars were any longer a legal tender even for five dollars. According to this interpretation, the silver dollar was "demonetized" by the Act of 1873. Without assuming to pass judgment on a point which has never gone to the courts, I suggest, for myself, that the omission of the silver dollar (of 1792) from the list could not have been held as taking away from it a legal-tender power specifically conferred on it by earlier statutes. To remove its legal power some positive injunction would have been necessary. This, however, is only the suggestion of a layman.

[2] In Section 3584 it is provided that no foreign gold or silver coins shall be a legal tender in payment of debts.

[3] For the discussion of this latter clause, and its relations to the decision in Bronson *v.* Rodes, see *supra*, chap. xii, § 6, p. 435.

Subsequent coinage legislation has made no further change in the legal-tender qualities of our metallic money.

§ 7. The prohibition to the states of the right to emit bills of credit, and the omission of the direct grant for this purpose to the federal government, did not, however, result in an absence of the issues of banking corporations chartered both by the state and federal legislatures, and these issues have been given a legal-tender power of various degrees.

The question as to the power of the national government to charter banks arose immediately after the formation of the Union, in the propositions of Hamilton[1] for the establishment of a national bank to supply a national currency, to aid in the payment and collection of taxes, to help control the issues of state banks, etc. The discussion brought out the different points of view as to the interpretation of the Constitution: Madison (in the House), Edmund Randolph (Attorney-General), and Jefferson (Secretary of State), — the last two in Washington's cabinet, — held that the government was one of express grants; that the power to charter banks was not implied in the provisions to borrow money, to lay and collect taxes, to regulate commerce, or to pass laws necessary and proper, etc. As to the last, Madison thought the power was "limited to the means necessary to the end, and incident to the nature of the specified powers."[2]

Notes of banks chartered by the United States.

As against this strict construction of the Constitution, Hamilton gave the initial movement to the doctrine of implied powers. He insisted that every power vested in the government is in its nature sovereign, and thus includes the right to employ all means requisite and fairly applicable to attain the ends of such power, if not specifically restricted, if not immoral, or if not opposed to the essential ends of political society. The federal government and the state governments are sovereign

Hamilton's doctrine of implied powers.

[1] Report on National Bank, Dec 6, 1790.

[2] Annals of First Congress, p. 1893 (Feb. 2, 1791).

each in regard to its own proper objects. The power to create corporations is an incident of sovereignty, and therefore belongs to the United States. The proposed bank, in his opinion, would aid in the collection of taxes by increasing the quantity of the circulating medium and thus increasing the means of payment. Congress may name the medium in which taxes may be paid; also may select the bills issued under the authority of the United States; and, as to the issuing of such bills, may use its discretion, from which it follows that it may determine that the creation of a bank is the best method.

The bill establishing the First United States Bank was passed February 25, 1791, and, accepting Hamilton's opinion as to its constitutionality, Washington signed it.

The total amount of all debts, including notes, over and above the moneys actually deposited in the bank, could not exceed the ten millions of its capital. The legal-tender provision was as follows:

> Sec. 10. ". . . That the bills or notes of the said corporation, originally made payable, or which shall have become payable on demand, in gold and silver coin, shall be receivable in all payments to the United States."

The notes were to be of denominations not less than ten dollars. Although the issues, under the above provision, could have nearly equalled the capital of ten millions, the actual quantity issued was never more than about one-half the capital (with a specie reserve in the known accounts of about 40 per cent of immediate liabilities, *i. e.*, of both deposits and notes). The character of the notes of this bank stood out in bright contrast to those of the state banks.

Notes of First Bank of the United States.

The constitutionality of banks created by the general government was determined by the celebrated case of McCulloch *v.* Maryland, in 1819, in which the opinion was delivered by Chief Justice Marshall of the Supreme Court. The legislature of Maryland, aiming at the United States

Bank, had made it a penal offence for a bank, or any branch, to do business in the state without its authority, or to issue notes of certain denominations except on paper stamped by the state. The first question considered by the Supreme Court was the power of Congress to incorporate a bank. Following, in the main, Hamilton's argument, it was decided[1] that Congress had the power.

Marshall in McCulloch v. Maryland.

The charter of the First United States Bank expired in 1811, and was not renewed; but its notes were receivable until March 19, 1812.[2] The Second United States Bank notes had similar force from April 18, 1816, to April 10, 1836. The provisions for its issues were in most respects similar to those of the first bank. The amount of debts, including notes, was limited to the capital, or thirty-five million dollars; they were receivable in all payments to the United States, unless otherwise directed by Act of Congress; and no denominations below five dollars

Second Bank of the United States.

[1] The substance of the decision is as follows:

The Constitution derives its force, not from the states, but from the people, and creates a government which, although limited in its powers, is supreme within its sphere of action.

The power to create a corporation, although not an expressly granted power, may be implied. The great powers of taxation, borrowing money, regulating commerce, waging war and maintaining armies and navies, being entrusted to the federal government indicate that it is likewise entrusted with ample means for their execution.

Raising revenue, and applying it to national purposes, implies the power to convey money from one place to another, and of selecting an appropriate method of such conveyance.

It is true the creation of a corporation appertains to sovereignty, but not to one portion of sovereignty rather than another. Since the power of sovereignty is in the United States, divided between the states and the federal government, the means necessary to carry these into effect belong to both.

Moreover, the Constitution has expressly granted the power to enact all laws "necessary and proper," which is not a clause of limitation, as is shown by its location (among the powers granted), and by its purporting to grant an additional power. "Let the end be legitimate, let it be within the scope of the Constitution; and all means which are appropriate, which are plainly adapted to that end, which are not prohibited, but consist with the letter and spirit of the Constitution, are constitutional." A corporation is such a means. 4 Wheaton, 316.

[2] II Stat. at Large, 695.

were allowed. If the bank should for any time be unable to pay its notes on demand, they were to draw 12 per cent interest. The branch drafts [1] which were drawn for even sums, by the cashier of any branch, on the parent bank, or to the order of some officer of the branch, and endorsed by the latter to bearer, were also receivable by the Treasury for public dues.

After 1836 no notes of banking institutions chartered by the federal government existed until the establishment of the National Banking System during the Civil War, June 3, 1864.[2] The notes were secured as to their ultimate redemption by a deposit of United States bonds. Their legal-tender status is given as follows:

Sec. 23. ". . . and the same shall be received at par in all parts of the United States in payment of taxes, excises, public lands, and all other dues to the United States, except for duties on imports; and also for all salaries and other debts and demands owing by the United States to individuals, corporations, and associations within the United States, except interest on the public debt, and in redemption of the national currency." National bank notes.

Sec. 32. ". . . That every association formed or existing under the provisions of this act shall take and receive at par, for any debt or liability to said association, any and all notes or bills issued by any association existing under and by virtue of this act."

Such being the legal-tender status of bank notes issued by institutions chartered by the federal government, we may now turn to those chartered by the several states.

The Constitution, while forbidding a state to issue bills of credit, was silent as to the power of a state to incorporate banking institutions. Whatever its legality, there was no question whatever as to the actual exercise of this power by

[1] Cf. Sumner, Life of Jackson, pp. 235 ff. See, also, R. H. C. Catterall's The Second Bank of the United States (Decennial Publications of the University of Chicago, 1902).

[2] The earlier Act of Feb. 25, 1863, was ineffective.

the several states.[1] Certainly, if, according to Marshall's opinion,[2] the states were sovereign within their proper sphere, and if they were thereby enabled to charter banks, then there could be little doubt as to the right of the federal government to do the same thing. The right of the states in this respect, while at first unchallenged, was later questioned, probably because of the abuses of their issue function rather than because of any new constitutional ground.

Notes of banks chartered by the states.

At the end of the second, and in the early part of the third decade of the last century, the states made attempts to evade the constitutional prohibition against the issue of bills of credit, of which there are two notable instances.

In 1821 the legislature of Missouri provided for loan certificates, signed by state officials, to the amount of $200,000, in denominations from fifty cents to ten dollars, and made them receivable for public dues and by public creditors. Their legitimacy was finally passed upon by the Supreme Court of the United States in 1830, in the case of Craig *v.* Missouri;[3] they were declared to be "bills of credit," and unconstitutional. A bill of credit was then defined to be "paper intended to circulate through the community for its ordinary purposes as money, which paper is redeemable at a future day."

Craig *v.* Missouri.

In another instance, Kentucky, on November 29, 1820, chartered the so-called Bank of the Commonwealth of Kentucky. Its stock was owned by the state, its officers were annually elected by the legislature, and their salaries were paid by the state. The notes of the bank were to be loaned on mortgage security to private persons, for the naïve purpose of "paying his or her just and honest debts." The notes were made receivable for public dues and by public creditors.

[1] The Bank of Maryland was chartered in 1790; of New York and Providence, in 1791; of Albany, Boston, Alexandria, and Richmond, in 1792. Cf. Sumner, Banking in the United States, p. 19.

[2] In McCulloch *v.* Maryland, 4 Wheaton, 316.

[3] 4 Peters, 410.

Their legality was denied by the State Court in 1834;[1] but the case was later decided by the Supreme Court of the United States in 1837. In order not to adopt the theory that the state could not do indirectly what it could not do directly, which would have denied the constitutionality of all issues by state banks, the Supreme Court narrowed its definition of bills of credit as follows: "To constitute a bill of credit, within the constitution, it must be issued by the state, and be designed to circulate as money. It must be a paper which circulates on the credit of the state and is so received and used in the ordinary business of life. Those who issue must have power to bind the state." Thus, so far as the constitutional limitation was concerned, notes could be issued under charters granted by a state, by banks, by individuals, by municipal corporations, — that is, by any agency except a state, using that word in its strictest sense.

Briscoe v. Commonwealth of Kentucky.

The political lines at that time, as is well known, were drawn between national and state banks. Those who favored the former were led to express doubts as to the constitutionality of the latter.[2] Webster expressed himself as follows:

> "The exclusive power of regulating the metallic currency of the country would seem necessarily to imply, or more properly to include as a part of itself, a power to decide how far that currency should be exclusive, how far any substitute should interfere with it, and what that substitute shall be."

And again, more strongly:

> "Where then do the states to whom all control over the metallic currency is altogether prohibited get the power? It is true that, in other countries, private banks, having no legal authority over the coins issue notes for circulation, but this they do always

Webster advocates national restraint over issues of state banks.

[1] Bank *v.* Mayes, Kentucky Circuit Court in 1834. The case of Briscoe *v.* Commonwealth came before the United States Supreme Court in 1834, and was decided in 1837 (11 Peters, 257).

[2] Cf. Webster, May 25, 1832. Works, III, p. 395.

with the consent of the government express or implied, and the government restrains and regulates all their operations at its pleasure. . . . I confess, Mr. President, that the more I reflect on the subject, the more clearly does my mind approach the conclusion that the creation of state banks for the purpose and with the power of circulating paper is not consistent with the grants and prohibitions of the constitution."[1]

Right confirmed by Supreme Court.

Although speaking as an advocate of a National Bank, Webster's point had force; for the power of the federal government to exercise restraint over the issues of state banks was finally recognized by the Supreme Court. As early as 1797 Congress had levied a tax of 6 mills on the dollar upon bank notes not exceeding $50;[2] and from 1813 to 1817 a tax beginning with 1 cent on a dollar and rising to $50 on notes exceeding $100 was laid. In the Civil War Secretary Chase, in his report of July 4, 1861, proposed a tax on "distilled liquors, bank notes, on carriages and similar descriptions of property." Chase held that Congress had ample power to control the credit circulation.[3] In order to provide a field for the circulation of the national bank notes, he advocated a prohibitory tax on the issues of state banks. This was finally enacted, March 3, 1865, providing a tax on any banking institution of ten per cent of the amount of state bank notes paid out by them after July 1, 1865.[4] The constitutionality of this tax in restraint of the issues of state banks was affirmed by the Supreme Court in 1869, on the grounds: (1) that, the issue of notes being profitable contracts, could be made contributory to the public revenue; and (2), that, under the coinage power expressly

[1] Works, III, p. 413. These words were referred to approvingly by Story, Commentaries, etc., §§ 1358–1370.

[2] Statutes at Large, I, 527.

[3] Under the power to lay taxes, regulate commerce, and regulate the issue of coin.

[4] The Act of July 13, 1866, strengthened this Act by applying it also to notes of "persons," as well as of banks, paid out after Aug. 1, 1866. Statutes at Large, XIV, p. 146. For the history of this legislation, see opinion of court, by C. J. Chase, in Veazie Bank *v.* Fenno.

granted, and its power to emit bills of credit long acquiesced in, Congress could take steps to fit its own coin and its own bills to serve as currency, — and one of these allowable steps would include the restraint of the circulation of notes not issued under its own authority.[1] Therefore, in spite of some lingering local feeling in favor of state bank issues, which might make a stringent repression impolitic, it evidently lies in the power of Congress to regulate these issues at its discretion.

Receivability of state bank issues by United States.

At various times in the past, however, state bank issues have been granted by the federal treasury more or less recognition as a legal means of payment. Even during the existence of the First United States Bank, the notes of those banks situated in ports where goods were entered were received by the Treasury.[2] Gresham's Law began to work; since it was more profitable to import goods at the ports of entry, where the notes were most depreciated, than elsewhere.[3] The Treasury got few notes of specie-paying banks. Finally, Webster's Resolutions[4] were passed, April 30, 1816, to wit:

[1] Veazie Bank *v.* Fenno, 8 Wallace, 533.

[2] The Secretary of the Treasury, Dallas (March 19, 1816), held that insistence on payment of revenue, or loans, in coin and Treasury notes would have been equivalent to a denial of all payment. For this reason the Treasury took the bank notes, and Congress, then in session, expressed no disapprobation.

[3] This led to the charge that duties were not uniform, as prescribed by the Constitution, and so violated the provision that "no preference shall be given by any regulation of commerce or revenue to the ports of one state over those of another" (Constitution of the United States, I, 9, 5).

[4] Webster said, descriptive of the existing circulation: "With a perfectly sound legal currency, the national revenues are not collected in it, but in paper of various sorts. . . . Before the War [of 1812], the business of the country was conducted principally by means of the paper of the different state banks. As these were in good credit, and paid their notes in gold and silver, on demand, no great evil was experienced from the circulation of the paper. Not being, however, a part of the legal money of the country, it could not, by law, be received in the payment of duties, taxes, or other debts to the government" (Works, III, p. 49). The procedure by resolution was adopted because "the case is not one in which the law is deficient, but one in which the execution of the law is deficient." Cf. also, Annals of Congress, XIV, Part I, pp. 1361, 1440, 1449.

"That the Secretary of the Treasury be, and he hereby is required . . . to cause, as soon as may be, all duties, taxes, debts, or sums of money, accruing or becoming payable to the United States, to be collected and paid in the legal currency of the United States, or treasury notes, or notes of the bank of the United States as by law provided and declared, or in notes of banks which are payable and paid on demand in the said legal currency of the United States" [and after February 20, 1817, no such dues shall be payable in other than the kinds of money enumerated].

Webster's Specie Resolutions.

This resolution was directed against the notes of non-specie-paying state banks which hitherto had been received at discretion by the Treasury. Legally the notes of state banks were not receivable at all. They had never been recognized by law; but also they had never been prohibited to the Treasury by Congress.

This restriction on non-specie-paying banks, to take effect February 20, 1817, by the help of the Second United States Bank, resulted in a return (even though it was, in many cases, nominal) to a specie basis all over the country.

After the expiration of the charter of the Second United States Bank (April 10, 1836), during the orgie of land and bank speculation of that time, the United States land officers were receiving the notes of state banks. At the instigation of the President, Secretary Woodbury issued the famous Specie Circular, July 11, 1836, requiring, with certain exceptions, specie alone in payment of public lands.[1] This action was justified by the precedent of 1816, which gave the power to reject the notes of any bank not paying specie, and also to test whether a bank was really paying specie.

Specie Circular, 1836.

The outcome of this measure, and the loss of the government deposits in state banks, led to the series of attempts finally ending in the Independent Treasury System of 1846,

[1] This document can be found in Senate Documents 1836-1837, No. 2, p. 96, or in Dunbar's Collection of Laws of the United States relating to Currency, Finance, and Banking (revised edition), p. 270.

by which the Treasury at that time severed all connections with state banks and the money market.

§ 8. It remains, finally, to state the legal position of bills of credit emitted directly by the federal government.

The scathing experiences with paper money during the colonial and continental periods had left an indelible impression only on a part of the community. When the War of 1812 brought a need for funds, the old and dangerous inability to distinguish between the fiscal and the monetary functions of the Treasury was displayed by even so distinguished a financier as Albert Gallatin. Hitherto no forms of government indebtedness had been adapted for use as money; but the issue of Treasury notes finally led to their use as a circulation payable on demand.

Notes of the United States.

The power to "borrow money" undoubtedly gave Congress the right to issue evidences of indebtedness either in the form of time obligations bearing interest, or in the form of a promise to pay on demand without interest. Early in the history of the United States the privilege of using the obligations of the government as an offset against debts to the Treasury was recognized, when, for example, federal obligations were made receivable in payments for public lands.[1] Hence it was clear that the issues of Treasury notes during the War of 1812 could be made a legal tender for dues to the government. The process of adaptation, however, to the function of money was gradual; and its final and extreme development was not reached until February 25, 1862. *Facilis descensus Averni.* It will be interesting to follow the steps of this progress downward, especially as it relates to the legal-tender quality of money.

Justification of receivability of government obligations at Treasury.

On the suggestion of Mr. Gallatin, the Act of June 30, 1812, authorized the issue of Treasury notes bearing 5$\frac{2}{3}$ per cent interest, payable to order, transferable by delivery and

[1] 1797, Stat. at Large, I, 507.

assignment, redeemable one year from date of issue, and receivable for all government dues at par and accrued interest. No denominations below $100 were issued. The legal-tender clause was as follows:

Treasury notes made legal tender for government dues, 1812.

> Sec. 6. "That the said treasury notes, wherever made payable, shall be everywhere received in payment of all duties and taxes laid by the authority of the United States, and of all public lands sold by the said authority."

Additional issues, authorized by the Acts of February 25, 1813, March 4, 1814, and December 26, 1814, were given identical legal-tender provisions.[1] In the last two measures denominations of $20 were established.

Later, the Act of February 24, 1815, carried out the original suggestion of Gallatin[2] by issuing Treasury notes of such denominations as may be directed by the Secretary, payable to bearer, transferable by delivery alone, and bearing no interest. They were not demand notes, for no time of maturity was set; and they were made convertible at any time, in sums of one hundred dollars, into seven per cent government stocks. The tender quality was as follows:

Treasury notes as money.

> Sec. 6. "That the treasury notes authorized to be issued by this act, shall be everywhere received in all payments to the United States."

Here we have an unmistakable case of "bills of credit" intended to circulate as money. It was the first precedent in the United States for a policy, fraught with endless ruin and disaster, based on attempts to execute a purely fiscal act of borrowing through an unwarranted intrusion into the mone-

[1] Nov. 12, 1814, Mr. Hall (Ga.) proposed to make Treasury notes a legal tender between citizens of the United States, but the resolutions were defeated in the House by a vote of 95 to 45. Annals, XIII Congress, 1st Sess., III, 557.

[2] "The advantage they [Treasury notes] would have would result from their becoming a part of the circulating medium, and taking to a certain extent the place of bank notes." Gallatin's Letter to Bacon, Chairman of the Ways and Means Committee, January 10, 1812. American State Papers, VI, 652.

tary functions of the Treasury.[1] This measure was more important as a precedent than as a practical cause of difficulty, because, under the refunding clause, the notes were soon withdrawn from circulation.[2]

Treasury notes in 1837.

Again, on October 12, 1837, during the suspension of the state banks in which the government funds had been deposited, because of the panic and the deficiency of revenue, another issue of Treasury notes was made; but they bore interest, had a term of one year, and could not be reissued. The legal-tender provision was the same as that of June 30, 1812, with the addition of receivability for "all debts to the United States, of any character whatsoever, which may be due and payable at the time when said Treasury notes may be so offered in payment."

A proposition was later made in Congress to give the Secretary authority to reissue these notes, for the avowed purpose of furnishing a medium of exchange in lieu of the notes of suspended banks. The objection[3] raised, that the power to issue these "bills of credit" had been deliberately withheld from Congress, and was therefore unconstitutional, was not supported; and the right to reissue was granted, May 21, 1838.[4]

Treasury notes of 1857.

Owing to the financial crisis of 1857, dutiable imports were left in the bonded warehouses with duties unpaid; and the income of the government fell below its expenditures. The need was met by an issue of Treasury notes, December 23, 1857, under the usual conditions (such as those of January 28, 1847). The main part of this issue (originally $20,000,000) was outstanding when the disturbed political situation led to the Act of December 17, 1860, by

[1] This has been at last made technically difficult only by the important Act of March 14, 1900, which separated the fiscal and monetary functions of the Treasury.

[2] Report of Secretary of Treasury, Dec. 8, 1815. Annals, 14th Congress, 1st Sess., Appendix, p. 1601. Cf. Knox, United States Notes, pp. 36–37.

[3] See Globe, 25th Cong., 2d Sess., pp. 369, 388.

[4] The Act of 1837 was extended by the Act of March 31, 1840. Similar issues were put forth Feb. 15, 1841, Jan. 31, 1842, Aug. 31, 1842, March 3, 1843, July 22, 1846, and Jan. 28, 1847.

which the power to issue and reissue Treasury notes to the amount of $10,000,000 was extended to January 1, 1863. This closes the series of events touching the issue of government paper money during the long period from the adoption of the Constitution to the Civil War. In all these seventy-three years the federal government never issued as money any demand notes, nor any which were a legal tender for private debts.

Precedents for the Civil War.

We may now pass on to the issues of government paper money during the Civil War, the culmination of the series of events first initiated by Gallatin in 1812. The progress from a time obligation of debt, having a purely fiscal function, to a demand obligation having an intentional monetary function, however, was gradual, and it was impelled by emergencies of war which had created monetary problems little understood by our leaders. The precedents of the preceding period, however, were responsible for the next step[1] downward.

First demand notes, 1861.

At the extra session of Congress called, after the outbreak of war, in the summer of 1861, the act passed to provide $250,000,000, passed July 17, 1861, gave the Secretary the right to issue part of the sum in the form of Treasury notes of the old type, and — what is of moment — a new form of demand notes, as follows:

> Sec. 1. ". . . And the Secretary of the Treasury may also issue in exchange for coin, and as part of the above loan, or may pay for salaries or other dues from the United States, treasury notes of a less denomination than fifty dollars, not bearing interest, but *payable on demand*. . . . That no treasury notes shall be issued of a less denomination than ten dollars, and that the whole amount of treasury notes, not bearing interest, issued under the authority of this act, shall not exceed fifty millions[2] of dollars. . . .

[1] The Treasury notes authorized, in certain contingencies, by the Morrill Tariff Law of March 2, 1861, were of the old type, bearing interest, and having a fixed term of two years.

[2] Increased by ten millions in the Act of Feb. 12, 1862.

Sec. 6. "And the power to issue or reissue such notes shall cease and determine after the thirty-first of December, eighteen hundred and sixty-two."

In a supplementary Act of August 5, 1861, denominations of demand notes not less than five dollars were permitted, and it was enacted (section 5) that they "shall be receivable in payment of public dues." This is the first instance in the history of the United States that demand notes were issued. They were also made a legal tender in payment to and from the Treasury of the federal government; but, it is to be noted, they were not a legal tender for private debts.[1]

Not a legal tender for private debts.

It is no part of the present study to give the financial and monetary history[2] of this period; we are concerned only with the exercise of the legal-tender power by Congress. The bungling attempts of the Treasury to sell $150,000,000 bonds in 1861 led to the suspension of specie payments by the banks and by the government, December 31, 1861. Although bonds could be sold at a price determined by the credit of the nation, Congress, rather than sell bonds below par, allowed matters to drift until the treasury was empty. Then under an immediate necessity,[3] which need never have supervened, resort was had to the last expedient of a bankrupt government, — the issue of paper money, payable to bearer on demand, but inconvertible, and a full legal tender for all debts, public and private. The first legal-tender Act of February 25, 1862, which authorized the issue of $150,000,000, fixed the legal position of the notes[4] as follows:

[1] After the issue of greenbacks, the demand notes were given an equal legal-tender power by the Act of March 17, 1862; but they kept their receivability for duties on imports (section 5, Act of Feb. 25, 1862).

[2] For a fairly complete history of the United States Notes (*i.e.*, the "Greenbacks"), see Report of Monetary Commission, 1898, pp. 398–479.

[3] For the insufficiency of the pleas of "necessity," see *ibid.*, pp 406–410.

[4] The two subsequent Acts of July 11, 1862, and March 3, 1863, used a different wording in some phrases, but aimed to give an identical meaning with that of the first act. After the words "bonds and notes," the second act inserted "and certificates of debt or deposit," and omitted "which shall be paid

Sec. 1. ". . . and such notes herein authorized shall be receivable in payment of all taxes, internal duties, excises, debts, and demands of every kind due to the United States, except duties on imports, and of all claims and demands against the United States of every kind whatsoever, except for interest upon bonds and notes, which shall be paid in coin, and shall also be lawful money and a legal tender in payment of *all debts, public and private*, within the United States, except duties on imports and interest as aforesaid."

Greenbacks made full legal tender, 1862.

The notes were also receivable for any loans to the United States. The first act forbade denominations below five dollars; but the second act (July 11, 1862) lowered the limit to one dollar.[1] The disappearance of subsidiary silver coins from circulation, even before the final passage of the second act, led to the grant of legal-tender power by an Act of July 17, 1862, to "postage and other stamps of the United States," as follows:[2]

Sec. 1. ". . . and from and after the first day of August next such stamps shall be receivable in payment of all dues to the United States less than five dollars."[3]

The confidence reposed by our legislators in the sacerdotal efficiency of the legal-tender provision to give support to any variety of money, or evidences of indebtedness, had reached such a pitch that it was even bestowed upon time obligations. The ignorant trustfulness of this state of mind now appears quite childish. The first instance was the making of Treasury notes of the

Treasury notes also made full legal tender.

in coin." The third act briefly ordered that the notes "shall be lawful money and a legal tender in payment of all debts, public and private, within the United States, except for duties on imports and interest on the public debt" (section 3).

[1] Not more than $35,000,000 could be of denominations less than five dollars.

[2] The same act forbade the issue of fractional currency by any private associations or individuals (section 2) after Aug. 1, 1862.

[3] By the Act of March 3, 1863 (section 4) a regular system of fractional paper money was provided, receivable as above, but excepting duties on imports.

old type, which bore interest and had a definite term, "a legal tender to the same extent as United States notes, for their face value excluding interest." [1]

When certificates issued for the deposit of gold coin and bullion were first authorized, March 3, 1863 (section 5), they were made receivable "at par in payment for duties on imports." Although suspended in 1879, they were again authorized by the Act of July 12, 1882, as follows:

Gold certificates.

> Sec. 12. ". . . Said certificates shall be receivable for customs, taxes, and all public dues, and when so received may be reissued."

These certificates (as well as the later silver certificates) could also be counted as part of its lawful reserve by any national banking association. They were in denominations of not less than twenty dollars.

Likewise, the silver certificates created by section 3 of the Act of February 28, 1878, were made "receivable for customs, taxes, and all public dues, and, when so received, may be reissued." They were in denominations, at first, of not less than ten dollars.

Silver certificates.

Finally, the Treasury notes of 1890, issued in payment of silver bullion, were, by the Act of July 14, 1890, given even greater legal power than the greenbacks:

> Sec. 2. ". . . and such treasury notes shall be a legal tender in payment of *all debts, public and private*, except where otherwise expressly stipulated in the contract, and shall be receivable for *customs*, taxes, and all public dues, and when so received may be reissued; and such notes, when held by any banking association, may be counted as a part of its lawful reserve."

Treasury notes of 1890 a full legal tender.

Before closing this outline of the action of the federal government in regard to its issue of "bills of credit," it may be well to pass briefly in review the adjudication by the

[1] Section 2, Act of March 3, 1863. As an indication of the desperate financial straits in 1864, this was again enacted in section 2 of the Act of June 30, 1864.

Supreme Court upon the constitutional questions involved in such issues of legal-tender paper money.

In the debate on the Act of February 25, 1862, the legislation was supported by a weak opinion of the Attorney-General[1] that, as the granting of legal tender had not been prohibited by the Constitution, failure to prohibit amounted to a permission. In the main, the bill was urged as a necessity, or as a war measure; and on the ground that the power to issue a legal-tender paper money was implied in the specific powers "to raise and support an army," "to provide and maintain a navy," or to regulate the value of coin. In this debate the extraordinary assumption of the right of Congress to do anything which had ever belonged to the sovereignty of even other forms of government than republican,[2] was already expressed by Mr. Bingham:[3]

Debate on constitutionality of legal tender.

> "I am here to assert the rightful authority of the American people as a nationality, a sovereignty under and by virtue of the constitution. By that sovereignty which is known by the name of 'We, the people of the United States,' the government of the United States has been invested with the attribute of sovereignty, which is inseparable from every sovereignty beneath the sun — the power to determine what shall be money — that is to say, what shall be the standard of value, what shall be the medium of exchange for the purpose of regulating exchange and facilitating all commercial transactions of the country and among the people. If the government of the United States had not this power, it would be poor, indeed, — it would be no government at all."

Theory of sovereignty, 1862.

Strangely enough, Mr. Pendleton, who later led the greenback movement, made a strong argument[4] against this the first exercise of the legal-tender power:

[1] Globe, 37th Cong., 2d Sess., p. 525.

[2] This was afterwards adopted by Justice Gray in Julliard *v.* Greenman, 110 U. S. 421.

[3] Globe, *ibid.*, Feb. 4, 1862, p. 636.

[4] Jan. 29, 1862, p. 549. See also speeches by Morrill and Conkling, pp. 629, 634; and those of Fessenden, Feb. 12, p. 762, and Bayard, Feb. 13, p. 795.

"Not only was such a law never passed, but such a law was never voted on, never proposed, never introduced, never recommended by any department of the government; the measure was never seriously considered in either branch of government. Not only was there no such power, but the omission was purposeful, because it was intended that such a power should reside neither in the states nor in the federal government." Pendleton.

After the bill became a law, questions — quite independent of the power to issue the notes — arose as to the interpretation and limitations of the act. For instance, did this law give citizens of any state the right to use these notes (often much depreciated below gold) in payment of dues to the state, such as taxes? As early as July, 1862, Chief Justice Field, in the Supreme Court of California,[1] held that the act, when not referring to federal obligations, used only the term "debts," and added:

"The notes, it declares, shall be 'a legal tender in payment of all *debts*, public and private.' Taxes are not debts within the meaning of this provision. A debt is a sum of money due by contract, express or implied. A tax is a charge upon persons or property to raise money for public purposes. It is not founded upon contract; it does not establish the relation of debtor and creditor between the taxpayer and the state." Greenbacks not a legal tender for state taxes.

This general position was confirmed by the Supreme Court of the United States,[2] in 1868.

Again, the question arose whether contracts for a specific kind of money like gold could be enforced, or whether legal-tender notes must be held equally acceptable. Legislation by both California and Nevada authorized the enforcement of payment in the specific kind of money contracted for; but by the decision[3] of the Supreme Court of Specific contracts.

[1] Perry *v.* Washburn, 20 Cal. 318-352

[2] Lane County *v.* Oregon, 7 Wallace, 71.

[3] Bronson *v.* Rodes, 7 Wallace, 229. This also covered such legislation as the reference to contracts in the Act of Feb 28, 1878. For a summary of the

the United States in 1868, all such statutes were rendered unnecessary, such contracts being held not to be within the meaning of the legal-tender act:

> "Such a contract is in legal import nothing else than an agreement to deliver a certain weight of standard gold, to be ascertained by the count of coins, each of which is certified to contain a definite proportion of the weight. It is not distinguishable *in principle* from a contract to deliver an equal weight of bullion of equal fineness."

Apart from these limitations, the question as to the constitutional power of Congress to authorize the legal-tender notes raised an eventful discussion. The Supreme Court of Kentucky, in the case of Griswold *v.* Hepburn,[1] had decided against the validity of the act. The Supreme Court of the United States, in February, 1870,[2] decided the act to be unconstitutional as to contracts entered into before the act was passed, on the following grounds:

First legal-tender decision, 1870.

> Contracts made before the act were in effect contracts for coin, and payment in depreciated notes was an impairment of contracts; that the right to add the legal-tender quality was not incident to the coinage power, nor identical with the power to issue notes (as, *e. g.*, the notes of the Continental Congress); that it was no more incidental to the power to carry on war than any other power involving the expenditure of money; that the legal-tender provision had not supported the value of the notes; and hence, being an impairment of contracts, was contrary to the spirit of the Constitution as shown in the prohibition laid on the states, and in the fifth amendment.[3]

general question and for the effect of recent state legislation, see *supra*, chap. xii, § 6. For a fuller statement of the arguments advanced, see Breckinridge, *op. cit.*, Appendix II.

[1] 2 Duval, Ky., 26.

[2] Although first argued at the December term of 1867, it was reargued December, 1868, but the opinion was not handed down until 1870. 8 Wallace, 606.

[3] ". . . Nor shall any person be deprived of life, liberty, or property without due process of law."

The minority [1] admitted the impairment of contracts, but held that, not being prohibited, the legal-tender enactment was permissible; that to make notes legal tender was incident to the power to borrow money, to raise and support armies, etc.; and the opinion of the majority as to the actual effect of legal tender on the value of the notes was disputed.

This decision, however, was not allowed to stand unquestioned. April 10, 1869, the number of associate judges was increased to nine; the resignation of Justice Grier, and the increase to nine members made two vacancies, which were filled by Justices Strong and Bradley.[2] A reconsideration of the case was moved in 1871 by the Attorney-General, the first decision was reversed, and it was held that the act was valid as to contracts entered into both before and after its passage. The minority of the first decision, and the two new justices, made up a majority of one in favor of the reversal in the second decision.[3] The arguments of the majority were in the main as follows:

Second legal-tender decision.

> The power to make the notes a legal tender was found to be one resulting from powers directly granted to Congress; contracts had not been impaired because there existed the right to

[1] The majority was composed of Chase, Nelson, Clifford, Grier, and Field; the minority of Miller, Swayne, and Davis. Grier resigned before the decision was actually published. Field, Chase, Swayne, Miller, and Davis were appointed by Lincoln.

[2] As to the suggestions of unsuitable haste, and procedure which lowered the high character of this tribunal, see Breckinridge, *op. cit.*, chap. xi, and Appendix III (for the Bradley paper).

[3] Great corporations having ante-bellum obligations about to mature had, of course, an interest in seeing the decision reversed. In such ways material interests were involved in the outcome of the litigation, as they always are in most cases before the courts; but there is no good ground for supposing that the opinions of the courts were influenced thereby. The general effect of the chances of large losses or gains to the public, however, undoubtedly had shown itself in the growth of public opinion against the first decision.

Moreover, the first decision arrayed the court against the administration, Congress, and the commercial public; while the majority in the second decision (*i. e.*, the minority in the first) found itself in agreement with both the political movement and with the constitutional tendency to strengthen the federal government.

pay that money which was lawful at the time of payment [the precedent being the case of "mixt monies"[1]]; yet, even so, Congress had the power to impair contracts; the act was applicable to obligations entered into both before and after the passage of the act; the act was justified by the exigencies of the time and the necessary unlimited control over sword and purse; and, finally, the justification of the act was to be found in the war power.

Third legal-tender decision.

According to this decision, then, the issue of legal-tender notes in time of war was valid for contracts entered into both before and after the passage of the act, but it did not cover the case of notes issued in time of peace. The Act of May 31, 1878, required the Treasury to reissue all notes after being redeemed. In the third decision,[2] in 1883, the Supreme Court, by a vote of eight to one, decided that Congress could make the notes issued in times of peace, as after 1878, a legal tender. The arguments in brief were as follows:

The power to borrow money includes the right to issue any form of obligations, or notes intended to circulate from hand to hand;[3] that Congress has general power over the currency, as has been fully established by the right to incorporate national banks which may issue notes recognized as a good tender (unless specifically objected to at the time of the tender); that, since the power to make anything other than gold and silver a legal tender is prohibited to the states, Congress may issue its obligations in any form permissible to the usages of a sovereign government; if Congress has been given the power to borrow money, it has all supreme powers of any sovereignty[4] within this

[1] See *supra*, p. 442.

[2] Julliard *v.* Greenman, 110 U. S. 421.

[3] In utter disregard of the wide difference which ought to distinguish the fiscal operations of borrowing from the monetary function of providing as stable a standard as possible for prices and contracts. To sacrifice the business interests of the country by a false monetary policy really amounted to making it impossible to borrow. The argument assumes that the power carries with it the right to abuse the power in every possible manner.

[4] "The power as incident to the power of borrowing money and issuing bills or notes of the government for money borrowed, of impressing upon these bills

sphere; that its power over the notes as currency is as broad as that over coins; in short, from a bunch of admitted powers, such as those to lay and collect taxes, to provide for the common defence, to borrow money, to coin money, to emit bills of credit, to charter national banks, to provide a national currency (such as coin, treasury notes, national bank notes), the Supreme Court held that the imposition of a legal tender upon notes in payment of private debts, being one of the powers belonging to sovereignty in other civilized nations (and not expressly withheld), was an appropriate means plainly consistent with the letter and spirit of the Constitution.

Dissenting opinion of Justice Field.

The one dissenting judge, Justice Field, objected to the rule of construction thus used as one hostile to the nature of the Constitution, and which would break down the barriers separating "a government of limited from one of unlimited powers;" and he denied the argument from sovereignty as proving too much: "The power to commit violence, perpetrate injustice, take private property by force without compensation to the owner, and compel the receipt of promise to pay in place of money, may be exercised as it often has been by irresponsible authority, but it cannot be considered as belonging to a government founded upon law."[1]

How far English precedents were followed.

Looking back to the early history of this subject, by way of contrast, we find that by recent decisions Congress is permitted to impair contracts. In so far, also, as the applicability of the legal-tender act to contracts antedating its passage was supported, the principle of the case of "mixt monies" has been expressly rejected. But in other and more important ways the Supreme Court accepted a mediæval precedent. The original control over money lay wholly in the hands of the Crown; and, in the mediæval stage of government, the Crown had unlimited power in this respect. The worst abuses of the coinage were technically

or notes the quality of being a legal tender for the payment of private debts, was a point universally understood to belong to sovereignty in Europe and America at the time of framing and adopting the Constitution of the United States." Julliard *v.* Greenman, 110 U. S. 447.

[1] *Ibid.*, 466.

within this power, as in the case of abuses by Henry VIII. What, therefore, did our Revolution, and the establishment of a government of limited powers, mean, if they did not protect the American people from just those abuses of unlimited power which had led to our revolt and independence? Is it conceivable, even on the theory of John Marshall, which made our Congress supreme in the sphere of a power granted to it, that the founders of our government, or the people of to-day, ever intended or meant to reconvey to Congress such unlimited powers to abuse and destroy as belonged only to a mediæval monarch? If so, what line separates our government from one of unlimited powers in regard to any subject? The seat of sovereignty being in the people, when did the people confer upon Congress all the attributes of sovereignty which may have been claimed by an unlimited ruler? The argument of the Court, in the last legal-tender case, followed to its logical conclusions, makes the existence of a written constitution of no effect, and breaks "down the barriers which separate a government of limited from one of unlimited powers." The people of the United States are no longer protected from the mediævalism of unlimited power over money by any guarantees, except those of an enlightened public opinion. It is to be hoped that this principle may not be applied to things other than money, should we ever come to a season marked by the characteristics of Henry VIII. Doubtless a sense of wisdom will yet lead to qualifications upon the extreme doctrine of the majority of the Court in the last decision, which, without denying to Congress sovereign powers in the sphere of a particular grant, may yet make clear the distinction between the ideas of republican and monarchical sovereignty, — between the power and the abuse of the power, between free and despotic institutions.

Last decision goes too far.

CHAPTER XIV

ECONOMIC EFFECTS OF LEGAL-TENDER ENACTMENTS

If Government wanted money, it should be obliged to raise it in the legitimate way; by taxing the people; by the issue and sale of exchequer bills, by funded loans, or by borrowing from any of the numerous banks which might exist in the country; but in no case should it be allowed to borrow from those who have the *power of creating money*. — RICARDO (McCulloch's ed.), p. 507.

§ 1. To this point, we have been treating the history of the legal-tender power, its origin and development in Great Britain and the United States. From this exposition it must be clearly apparent that hitherto the matter has been one concerned with the necessity of having a legal means of interpreting contracts. Indeed, the main importance of a legal-tender requirement is juridical; perhaps it might almost be said, also, its only importance. With this legal background for our study, it will now be possible to proceed with an examination into the economic effects of legal-tender provisions upon the actual value of the money to which they are attached. It has sometimes been thought that the economic effects were of chief importance; but it may be possible that this view is a mistaken one.

For the sake of clearness, the case of the establishment of a single metallic standard, as the basis of a monetary system, will be first considered. Later, the questions involved in the effects of legal-tender enactments upon more than one form of money will be more easily discussed. The establishment of a metallic standard, by a country which had none before, would create a certain new demand for that metal, according to the actual use of it in the different functions performed by money. Hence this new demand must appear for such an amount of

Demand for a single legal-tender standard.

the metal as would serve either: (1) as a common denominator of value, or the standard of prices; or (2) as a medium of exchange; or (3) as a standard of deferred payments.

As a standard of prices, the coined metal would usually be made a legal tender for debts.[1] This legal-tender provision would probably create no new demand for the metal that would not otherwise have existed, if no legal-tender power had been given to the coins. The quantity of that metal, — supposedly chosen as the standard of prices for the given country by legislation which necessarily reflects the general attitude of the commercial community, — needed for always maintaining the solvency of the various media of exchange in the standard coins, is determined, not by legal-tender enactments, but by the business habits and monetary organization in that country. Ideally, if all men were trustworthy and all equally well known, goods would be exchanged against each other in terms of the standard metal without a frequent and suspicious testing of the ability and solvency of the buyers; but, taking the world as we find it, there is a necessity for reserves to meet all cases of doubt and distrust. Just how much this amount will be must depend upon the characteristic monetary methods of the business world in each country. Solely for use as a standard of prices, there would be as little need of much of the standard metal as there would be of many north stars by which to compute geographical position. The demand for the metal arises from those human conditions (limiting ideal situations) which require more or less of the standard commodity to be used, not merely as a standard, but in the function of a medium of exchange. To establish a metallic standard, and make it a legal tender for debts, therefore, creates a demand for that metal almost solely to the extent that it is actually used as a medium of exchange.

The demand, however, — whatever it may be, whether

[1] "Originally, in all countries, I believe, a legal tender of payment could be made only in the coin of that metal which was considered as the standard or measure of value." Adam Smith, Wealth of Nations (McC. ed), p. 17.

great or small — arises strictly from the use of the metal either as a standard, or as a medium of exchange. Such a demand would exist, in any civilized community, by the very adoption of the metal as the standard of prices by universal usage, and quite irrespective of any legal enactment as to its juridical function. The demand for the given amount of that metal for monetary purposes arose from the economic needs of buyers and sellers; the addition of a legal-tender power was an expression of the universal sanction which had already been given to the choice of that standard. That is, the demand being already developed, the law made legal recognition of that situation which had previously been created by commercial usage; otherwise a legal-tender law would be as much a dead letter as trial by jury among a lawless body of savages. The reasons for the selection of a standard were admittedly independent of and antecedent to the addition of a legal-tender clause. The article chosen as a standard had first its own value because it was of peculiar service to the community either as satisfying a practical need or gratifying some strong passion for ornament. It was the capacity of the commodity to satisfy a subjective desire of men that permitted value to be given it. It was for qualities such as these that any article had value, and was consequently — together with other accepted conditions touching supply — chosen as a standard; these were the reasons why every one was willing to accept this article as money when passed from hand to hand. It was not a legal-tender enactment that gave the standard article value;[1] the legal-tender quality was added to it precisely because it already possessed the qualities which gave it undisputed value. And why? Because, in the legal enforcement of a just payment of debts, it must ever be the first aim of the legislator to exact that, and only that, kind of payment which would be so universally acceptable that the debt would be justly satisfied without a shadow of doubt. The metal

Value not given to standard by legal tender.

[1] Except so far as its acceptability for certain dues gave it more of a demand, — to be later discussed.

chosen as the standard of prices should have such expenses of acquisition, such supply, such demand that its purchasing power over other articles should be unfailingly present at all times. Then the state can declare that such a commodity — and it alone — shall be a legal acquittal for disputed claims at law. The act of the legislature can order that a given number of grains of pure gold (or silver) shall be called by the name of a certain unit (*e. g.*, a dollar, or a pound) and in terms of which contracts may be made, and in the equivalent of which the matured obligations shall be paid. Only in so far as the law shall thereby have added to the world's demand for gold some new demand which would not otherwise have existed, and only in that proportion, can the legal-tender enactment have affected the value of that article already chosen as a standard; and it can affect its value only through the demand thus created. Yet from what has been said, it must appear that adding a legal-tender quality to a standard good and sufficient in itself does not create any new demand for it.

§ 2. In case the metal adopted as a standard is also used as a medium of exchange, the addition of a legal-tender quality to it in its latter function can have little effect in modifying the value which it would otherwise have had. In fact, the amount of the standard commodity which will also be used as a medium of exchange depends primarily on the commercial advancement and business habits of a given community. The mere adoption of a given metal as the standard carries with it, according to the monetary customs of the people, a greater or less use of that metal as a medium to be passed from hand to hand in actual exchange of goods. This arises from the fact that persons of different grades of commercial development will require more or less of money to be passed from hand to hand. If, then, a legal-tender quality be added to this metal, it will not, by the mere virtue of that enactment, cause any greater or less amount of it to be used as a medium of exchange; because the law will not have changed the business habits of the people, nor the pro-

portion which actual cash bears to the total amount of transactions. In short, the legal-tender clause would not cause any new demand for the standard metal for use as a medium of exchange which would not have existed because of forces already in operation, had such an act not been passed. The tender has been devised for convenience and justice in legal adjudication, and not because it brings with it an economic power to affect the value of the money commodities; it adapts itself to, rather than creates, the value already fixed by economic forces.

Demand for medium of exchange independent of legal tender.

§ 3. Upon the value of a standard of deferred payments, it may commonly be thought that a legal-tender measure would have a large and influential effect. In regard to executory contracts, its function as a liquidator of debts would supposedly be the most active. Here, of all places, would be formed a demand for that kind of money, having the legal power of paying debts, which would greatly affect its value. The amount of existing indebtedness being admittedly so enormous, it would seem to be self-evident that the kind of money receivable for debts would be in exceptional demand, that much of it would be needed, and by its legal-tender quality its value would be greatly enhanced.[1] It being

[1] A good illustration of the fallacious point of view often held is to be found in the Minority Report from the Committee on Coinage, Weights, and Measures to the House, Jan. 20, 1902 (H. R. Bill, 7645), aiming to prove that legal-tender silver dollars could never go to a discount compared with gold: "The reason they can never go to a discount is because they can be applied to so many uses. They can be utilized according to law for the payment of all dues to the National Government, which aggregate over $700,000,000 per annum; of all State, county, and city taxes, which aggregate more than $500,000,000 each year; of the $10,000,000,000 of notes and bonds payable in lawful money; of the $8,000,000,000 of deposits payable by banks; of the $6,000,000,000 of thirty, sixty, and ninety day paper payable to banks; of the $10,000,000,000 to $15,000,000,000 of thirty, sixty, and ninety day accounts always outstanding; of premiums upon life-insurance policies, which aggregate $350,000,000 each year; of losses by life and fire insurance companies, which amount to over $300,000,000 per annum; of installments upon shares in building associations, which equal nearly $500,000,000; of amounts due on contracts, for construction of buildings, railroads, ships, canals, and other improvements in the United States aggregating at least several billions of dollars."

the practical habit of the business world to use also as the standard of deferred payments for time contracts the metal which has been adopted as the standard of prices, it is generally supposed that if the legal-tender quality is attached to this metal, it will certainly have an important effect on its value.

How this effect is to be produced is not explained; but clearly it can be supposed to operate only through a demand for the metal which will thereby change its world value. In truth, we are forced to ask how far a legal-tender enactment causes the money to which it is attached to be actually used in the payment of time contracts, or even of those obligations which have been taken into the courts to secure enforced payment? Each claim collectible at law is expressed in terms of the legal-tender standard coins; and the superficial inference is sometimes made that the debt not only must be, but in fact always is, paid in such money. Here, again, we run upon the old truth that the media of exchange actually in use is not necessarily the commodity chosen as the standard. Prices and contracts may be expressed in gold or silver, but it is by no means necessary, or even desirable, that the liquidation should be accomplished by the actual passage of gold or silver between debtor and creditor. Invariably that means of payment will be acceptable to a creditor collecting a debt which would be satisfactory in any other payment, such as that used for the purchase of goods on the spot. And the creditor will invariably accept that means of payment which is in common use in the business community. If checks on bank accounts are in general use, a creditor collecting a debt by judgment of a court will accept in payment of a debt expressed in legal-tender coins a check upon a responsible bank, duly certified. That is, in all payments, even of debts, whether legal-tender money is actually used or not depends wholly upon the business and monetary habits of the community. The existence of a legal-tender requirement does not necessitate the use in payments even of the forms of money legally specified. If a

Contracts not necessarily liquidated by legal money.

judgment is declared in a court against a debtor, the court official is always satisfied to receive a certified check in payment of the claim. In short, the customs and habits of the business public determine even for the courts how much of the standard metal shall be used as a media of exchange; and acceptable media have been created which are freely used instead of legal money, or the standard coins. The real service of the legal-tender law is to secure to debtor and creditor, in cases of dispute, a judicial opinion, in terms of the legal-tender money, as to the exact equivalent which ought to be paid; then that equivalent value may be transferred in many other ways than by the actual legal money. The existence of debtors and creditors, in vast numbers and in vast transactions, and the action of courts enforcing contracts, do not in any way modify the business habits in regard to money which prevail in all other pecuniary relations.[1]

§ 4. One is led to the inevitable conclusion that a legal-tender power, in and by itself, has very little influence on the value of a money which it would not otherwise possess for independent reasons. Law, in the form of legal-tender requirements, can affect the value of a given metal only in so far as it can create a new demand for that commodity, due solely to legal-tender uses, and which would not otherwise have existed; and that new demand must be such in intensity and kind as to affect the total world's supply, and the international value, of the given metal. It must appear at once, if this be true, that the effect of a legal-tender law in any one country on the value of a given money metal will be far less than is generally supposed, since it is not likely to be considerable enough to affect the total world's supply. If, as in the case of gold, the existing stock in the world is very great, the effect of a legal-tender law in any one country would be insignificant.

[1] It is much to be doubted if debtors, as De Viti suggests, really coin money, when a certain metal is abundant and thus increase the money supply (Moneta e Prezzi (1885), chap. vii, 6). The operation of legal tender under two unlike standards, however, is another question.

A distinguished financier,[1] who noted how little legal-tender acts had affected the value of money, explained the facts on a statistical basis as follows:

> "The statistics of our census of 1890, which attempt to give the amount and period of the indebtedness of the country, when compared with the Clearing-House transactions of a single year, show that not more than four per cent. of the transactions of that year can consist of the liquidation of debts that antedate that year."

In this method of disclosing the very small proportion of past debts to current transactions (presumably effected in cash), the purpose is to show that the needs of money for paying debts are much less than usually supposed; a truth which should certainly be kept in mind. But deeper than this statistical evidence is the distinction to be kept in mind between the standard coin and the medium of exchange. Granting that debts, *per se*, bear but a small proportion to current transactions, it means only that debts, as compared with other transactions, create but a small demand for the conventional media of exchange used by the public; but it is not by a demand for media of exchange that the value of the money metal chosen as the standard of prices and contracts is influenced. Figures as to the quantity of the media of exchange have little to do with the data bearing on the value of the standard metal; since the media of exchange may be other in kind and nature than the standard metal. As said before, the legal-tender power could affect the value of the standard metal only by creating a new demand for it, which would not otherwise have existed.

Payment of debts creates small demand.

§ 5. Thus far we have studied only the case of legal tender as applied to a single metallic system. We now pass to that of two or more unlike standards, each given the legal-tender quality: either two unlike metallic standards, such as gold and silver; or two such standards as gold

[1] Ex-Secretary Chas. S. Fairchild, North American Review, Feb., 1898.

and convertible paper; or two such standards as gold and inconvertible paper.

If two metallic commodities be given equal legal-tender power, and if the two metals cannot be maintained at the same relative values, the cheaper of the two will, by Gresham's Law, be used in payment of obligations. In such a case appeal might be made to the fact that debts form but a small sum as compared with current transactions, and that very little chance would be given for the use of a cheaper metal. This objection requires some exposition of the character of current transactions in the wholesale market. They are mostly time contracts, although the time is usually very short, varying from call loans and demand obligations (such as deposits) to short loans for thirty, sixty, or ninety days. Most purchases by retail merchants, payments for materials, coal, provisions, etc., also fall into this class. The whole business world is always creating short-time obligations, to which legal-tender laws apply. Hence, if two kinds of money are given equal power to meet current obligations, and one is cheaper than the other, the legal-tender enactment has here a clear and unmistakable influence. Although it cannot give value, although in and for itself it cannot create much, if any, demand, the very serious fact must be recognized that the legal-tender power can determine the direction in which the demand (arising from independent causes) will go; it can transfer the necessary monetary demand of a community from one kind of money to another. This is the influence so often noted, and which is (wrongly) attributed to the legal-tender power *per se*. When a government has a unit of payment (*e. g.*, a dollar, or a pound) expressed in certain weights of two different metals, such as gold and silver, then if both metallic coins are received by law on equal terms for all debts "public and private," a change in their market value may bring about a situation exactly the same as if the state had intentionally transferred the standard for prices and contracts from the dearer to the cheaper metal. The laws of

Bad effect of legal tender on two standards.

any one country can transfer, to a greater or less extent, an existing and normal demand for one metal, in its various monetary functions, to another cheaper metal, and to that extent it can lower the value of the dearer and raise the value of the cheaper metal — but, in both cases, only in the proportion of that demand to the total world's supply. The natural and unaided influence of legal-tender acts in such a case is degenerating; they drive out the dearer and retain the cheaper money. If no legal-tender laws existed, as in international trade, the very opposite would take place; the good money would drive out the bad.

If not only the gold chosen as a standard, but also the various note-issues convertible into gold, be given the legal-tender quality, various consequences may result. In the first place, the immediate convertibility of the notes will ensure their parity in gold; and the legal-tender quality, so far as bolstering up their value goes, is superfluous. It may be a convenience from a legal point of view to give convertible media of exchange legal-tender power, but it is clear beyond peradventure that from a monetary point of view the legal-tender quality has no influence whatever on the value of such money, provided redemption is constant and immediate. In short, the case of gold and media of exchange convertible on demand into gold is the same as if there were but one legal-tender standard of prices.

No effect on convertible paper.

But in passing to a case of gold and an inconvertible paper, each possessing an equal power per unit of account in paying debts, the results are striking. It is out of such a situation that the popular belief has arisen that a legal-tender enactment can give value to a thing sometimes worthless in itself. As in the case of two unlike metallic standards, the legal-tender measure can transfer the money demand from the metallic to the depreciated, or debased, paper money. Gresham's Law operates to bring into use the cheaper paper just the same as it would a cheaper coinage, and for the same reasons. Almost all the

Brings Gresham's Law into operation.

popular impressions as to the effect of legal-tender acts on the value of money are to be classified under this head. Within a country can a statute give to money circulating within its borders a value which it could not have outside its territory? Evidently it could; but not for reasons wholly connected with the legal-tender quality. The depreciated paper, if it has any value at all, owes that to the prospect, be it dim or bright, of ultimate redemption in coin. But if a quasi-system of redemption for such paper be established, by giving it a legal-tender power for payments which would otherwise require gold, a partial although uncertain value is given to it. It may be made receivable for certain taxes, customs, etc. Such regulations, however, are not conclusive as to its value; and they alone do not keep the paper at a parity with gold. That can only be done by a provision for immediate (not merely ultimate) redemption in coin.[1] The value, then, of a depreciated paper, or of a debased coin, within a country, depends upon the laws and regulations affecting its possibilities of redemption in coin, or upon the uses to which it can be put alongside with such coin (which constitute a quasi-redemption).

Yet even such statutes are often ineffective in the face of the normal demands of a commercial organism. In most cases business men cannot, and do not, expect to make use of legal technicalities to escape the full burden of just debts. Among men with important connections in settled industrial communities, expecting to go on buying and selling continuously, each party to a transaction will find it to his own self-interest to give as well as to get a full and exact equivalent for what was passed in trade. It will not be good business policy for established houses to cheat or circumvent their creditors, even if it were legally possible to do so by the existing laws of tender. If they pleaded the technical provisions of the law to escape the full force of a contract, evidently they could never obtain credit from the same source again. Continuous trade demands the strictest honor

[1] Cf. *infra*, chap. xv, § 7.

in keeping agreements; for few merchants can now do business without making more or less use of credit. In exceptional cases, where an adventurer is ready to cheat and then depart, advantage may be taken of tender laws to work an injustice. In the long run, however, the statute must conform to the requirements of business integrity, or it becomes a dead letter. Very often in practice legal-tender laws may come to have no more binding force than usury laws.

§ 6. In trying to analyze the forces affecting the value of money, and in separating the real from the unreal, it has been found that legal-tender enactments have had little influence in and by themselves. In domestic trade it may have been difficult to conceive of the conditions in which the effect of local statutes on legal tender may be separated from elemental and deeper causes; but fortunately for our purpose we have an admirable experiment carried on in international trade, in which, of course, the legal-tender laws of individual countries have no force.

It is seen at once that a money metal (*e. g.*, gold) having a world value is used quite independently of any law of tender; nor is business carried on any the less efficiently for that. American gold coin cannot be forced upon an Englishman in payment of debts; nor English sovereigns on an American. The actual quantity of pure gold in either kind of coins forms a perfectly secure standard for expressing international prices, and provides a safe basis for reckoning accounts and paying balances. Practically nothing[1] is added to the legal efficiency of gold in international payments (apart from the saving of assaying, etc.) by the stamp of the kingdom or the republic; what gives it currency are the basic causes which the world over make gold an article of value. International payments are made in

Influence nil in international trade.

[1] An apparent exception to the general rule exists when, in times of pressure, the coins of any one country may bear a very slight premium in the other country for exportation home. The home coins save the short delay at the mint that is caused if other gold is imported which must go through the coinage process.

a commodity whose value is dependent wholly on world conditions, and not on any extraneous powers of local enactments.

In this branch of trade, moreover, the standard in which prices are expressed is itself seldom used as a medium of exchange. The latter, between foreign dealers, appears in the form of bills of exchange, doing in this field what, in domestic transactions, is accomplished by the deposit currency. If one country possesses a silver standard and deals with a gold-using people, there is no need of the binding operation of legal-tender laws; since the weight of metal in the coins of the one is estimated, not at any fictitious legal ratio, but at the existing market value of the metal in the coins of the other country. Here purely artificial schemes are swept away, and the normal use of money appears untrammelled by law.

In international trade, by normal and healthy action, the cheaper money is expelled, and the dearer and more stable money is retained. The absence of legal-tender law produces a wholesome condition. It is only within the realm of domestic trade, where legal-tender laws are operative, that the poorer money is allowed to drive out the better.

§ 7. The fact that futile and mischievous attempts have been made to give debased coins and even depreciated paper a value which they did not possess by arbitrary legal-tender laws, may have doubtless produced a prejudice against many legal-tender provisions. And yet, while it clearly has no desirable function as a monetary force, it must be admitted that it is essential to the legal interpretation of time contracts.

To what forms of money, then, should it be attached? Clearly enough, at least, to the standard metal, in terms of which prices and contracts are expressed and drawn. Beyond this, on grounds of monetary policy, it would not be necessary to go. Also, it is clear that it should not be given to two metals at one and the same time, because it will only produce an alternating standard at the best; and the theory that two standards are

What forms of money should be made legal?

needed in order to secure an abundance of media of exchange is a part of the incorrect quantity theory. Should it be given to media of exchange, such as convertible paper money and bank notes? There is no monetary reason why it should. If immediately convertible, the legal-tender quality will have no effect on its value. It is possible that safety and the convenience of the business public, in times of emergency and panic, would be furthered by the ability to use such convertible media of exchange as legal means of payment. If any evil should arise in regard to this kind of money, — which had no legal-tender quality, — it would be found, without question, in the inadequacy of the measures to secure immediate redemption in coin rather than in the absence of the legal-tender quality. But — on the supposition that the convertible media of exchange were all made legal tender — once let the redemption fail, and there would be disclosed all the innate monetary depravity of a depreciated money originating directly from its possessing a legal position. The question of assigning the legal-tender power to these media of exchange requires us to decide between two evils, with good to be gained in one case only if wisdom prevails. If such media of exchange can be kept irrevocably and immediately convertible into the standard coin, then their legal-tender quality may be of service in those times when all goods and securities are being thrown on the market, and when a means of payment for maturing obligations is the *sine qua non*.

And yet, if we grant the desirability of giving legal-tender power to media of exchange such as government paper and bank notes, why not to the deposit currency? It is a medium of exchange far more effective in reality than any other; it expands when most needed, and contracts when not needed; it is based on transactions in goods, and it is as safe as the general business and the value of a country's goods. Doubtless, this medium of exchange has never been thought of as needing a legal-tender power with which to do its work; it has grown to a vast and phenomenal volume, far out of proportion to any other, and without any legal aid. In times

of panic it is the means of payment which, in fact, is satisfactory to all those having dealings with the banks which create it. When legal-tender money is unobtainable, this is the means of payment which in fact every one relies upon; but, very evidently, not because it has any legal power. It is wanted because it is acceptable to creditors, and its safety and value are based on quite other causes than legal force. If, then, the deposit currency is the medium of exchange which, without having had any legal-tender power, has developed as no other, and which has become the necessary reliance of the business world in times of panic, why should any other media of exchange be granted a legal quality? The argument against such action is very strong. If government paper and bank issues are never made a legal tender, then no reliance for maintaining their value is likely to be put upon the useless support of legal-tender power; and every effort will be concentrated on providing reserves for their immediate redemption in coin. If so, their value will be assured at all times, and they will be as universally acceptable, even in times of panic, as the coin into which they are convertible. There would, then, seem to be no preponderance of monetary reasons for giving them a legal-tender power.

§ 8. The historical study of experiments in which debased coins and depreciated paper money have been given a legal-tender power with intent to create a value they could not, for other reasons, possess, shows universal failure. This, however, is not the place for a detailed presentation of these cases. It must now suffice to recall here one or two illustrative experiences which are illuminated by the use of the foregoing principles.

The history[1] of the United States Notes ("greenbacks") in the period of inconvertibility (1862–1879) is full of interest in regard to the effect of a full legal-tender power on the

[1] For a fairly full account of this period, see Report of the Monetary Commission, 1898, pp. 398–444.

value of depreciated paper. Without entering into details, the principal facts stand out too plain to suggest any possible cavil: from the start these notes possessed the legal-tender quality, and yet they depreciated by June, 1864, to 35 cents on the dollar. Violent fluctuations in their value took place; and after the close of the war, when redemption in coin became a future possibility, they gained in value. Finally when, after 1875, provisions for the collection of specie sufficient to insure immediate redemption were carried out, the notes rose to par at the end of 1878. It may be said, without fear of contradiction, that the legal-tender quality never produced any visible effect on the value of the paper. The reasons for this are not far to seek. The depreciation of the legal-tender paper drove the coin out of circulation; and the value of the paper lay at the mercy of any fiscal or military event which threw light on the success of the war for the Union and the future ability of the government to meet its obligations in specie. The paper was not only a standard of prices and a medium of exchange, but also a standard of deferred payments.[1] The legal-tender quality, in none of these functions, protected it from depreciation. That is, the mere fact of its being a means of paying debts did not create any such special demand by which it gained a value independent of that connected with the possibilities of redemption.

Legal tender did not sustain greenbacks.

In California, where the use of the gold had become customary, the notes were excluded by the Specific Contract Act, upheld by the force of a public opinion which regarded the attempt to escape from a just debt contracted in gold, by taking advantage of the legal-tender quality in the depreciated paper, as an act of grave dishonor. That is, if men were to continue permanently in business, debtors must pay that which is a just acceptance by creditors.

Again, in 1893, a money and banking panic overtook the United States due to the fear that the then existing acts of

[1] The paper, however, was not receivable for customs duties, nor payable for interest on the public debt.

Congress would bring in the silver standard. Foreigners sent our securities home to be sold, and American investors disposed of their holdings, to obtain gold, if possible, before the coming of silver payments. The mere fear of a silver standard caused a rush of liquidation. And yet it is to be remembered that the silver dollars were an unlimited legal tender. Still no experienced investor for a moment really believed that this legal quality would give the silver coins a value independent of that imparted to them by basic forces affecting silver itself. The transfer of the entire monetary demand from gold to silver, which the legal-tender clause would have accomplished for this country alone, would have had an effect on silver only in so far as it would have changed the world's value of silver, and in the proportion of that new demand to the total stock in existence.

The interested reader will be able to find other illustrations, in great number, which will throw light upon the actual effect of legal-tender powers in maintaining a value in a debased coinage or a depreciated paper. But it would be difficult to conclude from any existing data that a legal-tender enactment — apart from those establishing some form of indirect redemption — has ever given to any money a value which it would not have had independently of such laws.

CHAPTER XV

LAWS OF TOKEN MONEY

He [Lowndes] was not in the least aware that a piece of metal with the King's head on it was a commodity of which the price was governed by the same laws which govern the price of a piece of metal fashioned into a spoon or a buckle, and that it was no more in the power of Parliament to make the kingdom richer by calling a crown a pound than to make the kingdom larger by calling a furlong a mile. — MACAULAY, *History of England*, chap. xxi.

Report of Monetary Commission, 1898, pp. 113-130. — J. S. NICHOLSON, *Money and Monetary Problems*, p. 118. — W. S. JEVONS, *Money and Mechanism of Exchange*, p. 102. — F. A. WALKER, *Money*, pp. 218-222, 289. — H. P. WILLIS, *History of the Latin Union* (1901); IBID., *Austrian Monetary Reform*, Sound Currency, vol. vi, No. 8; IBID., *Monetary Reform in Russia*, ibid., vol. vi, No. 7. — J. L. LAUGHLIN, *History of Bimetallism in the United States* (4th ed.), pp. 189-203.

§ 1. ANY coin, or money, whose contents have a market value less than its face, or nominal, value, presents a case of token money. Either with subsidiary currency or with money of larger denominations, the existence of a seigniorage [1] is the test to be applied in deciding whether it is token money or not.

Seigniorage the characteristic of token money.

The most familiar case of token money, that is, one having the characteristic of seigniorage, is, of course, that of fractional or subsidiary coins. In connection with such money it will be possible first to make a statement of the principles regulating its value; afterwards we can pass on to other, and possibly more interesting, instances.

At least in regard to token coins it might be held that the quantity theory would furnish the principle regulating their value, since that theory presupposes for its successful operation the absence of free coinage, and the actual transfer

[1] Cf. the discussion of brassage and seigniorage, *supra*, chap. ii.

of that money in all exchanges of goods.[1] It is to be recalled that in a system of subsidiary coins these conditions hold true: they are coined only by the state, and they are regularly passed from hand to hand for small change. Hence it might logically be inferred that their value was kept at par with the standard coin by a comparison of the money work for this class of coins with the quantity of them in circulation. Probably in no other part of the whole field of money could there be found a case in which conditions are more nearly suited to the operation of the quantity theory. And yet, in my judgment, even in this case, granting an existing demand for small change, the quantity in circulation is not the fundamental element in regulating their value.

The quantity theory and token money.

The demand for "change" of any sort, large or small, is imperative. The need of various denominations of money has arisen, in fact, from the primitive want disclosed by lack of coincidence in barter: if one has an article of large value which cannot be easily and quickly divided into parts equal to the value of smaller articles much in demand, one suffers a great inconvenience. If there were no coins of denominations suited to the values of retail goods, the community would be instantly obliged to create substitutes which would do the work of "change." In the period about 1840 and thereafter, when our silver coins had been driven out of circulation by the cheaper gold, foreign coins, fractions of coins cut in many ways, were employed as substitutes. Again in July, 1862, when the depreciated greenbacks had driven out both the gold and the subsidiary silver coins, an infinite variety of devices adopted by merchants for small change suddenly appeared in our cities; and this need first suggested a postage-stamp currency, followed by a national subsidiary paper money, familiarly known as "shinplasters."

Need for "change" imperative.

Fractional money, then, presents the case wherein there is a persistent demand which must be satisfied by some

[1] Cf. chap. viii, § 2, 1.

medium of exchange actually passed from hand to hand; it cannot ordinarily be dispensed with by use of checks and deposits. Although, as the community becomes more and more habituated to the use of bank accounts and checks, the latter will be used to an increasing extent instead of the coins which have been formerly passed from hand to hand. While this is likely to hold true more and more of large change, yet there is a class of retail transactions for which some form of coin, or paper money, will always remain an actual necessity. Wherever persons are unknown to each other, or distrusted, the situation requires a payment which will finish the transaction then and there.

Permanent demand for small token money.

§ 2. Still keeping in view a system of fractional coins, we may proceed to state the requirements which have been gradually admitted to be essential to a perfect, modern scheme of token money. It is to be observed, however, that these regulations have had but a recent rounding out; and that the application of the various principles, while often mentioned, has not been fully operative until within, perhaps, the last twenty-five or fifty years.

(1) Subsidiary coins have been reduced in weight below that of the corresponding face value of the standard coins. For instance, the act of 1853 in the United States reduced the amount of pure silver in two half-dollars, four quarters, etc., to 345.6 grains as compared with the 371.25 grains in the dollar piece. In other countries the fineness of fractional coins is different from that of the larger denominations, and in this way a difference in the value of the coins has been created. The reason for the seigniorage has, in some cases, arisen from past attempts to keep both gold and silver coins in concurrent circulation: seeing that changes in the market rate of gold and silver sometimes drove out the silver coins, it was noticed that when subsidiary coins contained the same proportional amount of silver as the larger coins, the events

Historical reason for seigniorage.

which caused the larger silver to disappear also carried off the smaller coinage. With a desire to retain subsidiary coins, irrespective of the relative changes in the value of gold and silver, it was a simple device to reduce the fractional coins to a value which would remove the profit from melting, or exporting, them.

Practical reason for seigniorage.

Although the historical reason for the existence of small token coins has had some worth, another of practical importance has also been influential. For parts of a dollar, or pound, a coinage of silver was necessarily chosen, because the value of an amount of silver equivalent in value to articles in retail trade provided coins of the most convenient size; gold coins for small denominations would be impracticable because of their small size; copper, or nickel, because of their large size. But the tendency of silver to fall in value has introduced a seigniorage relatively to gold coins hitherto unexpected. If our half-dollar, for example, were to contain silver worth only 45 cents (so that the seigniorage would still be ten per cent relative to the gold dollar), its weight and size would now be those of the present dollar piece. This fact may be no argument for lessening the very great seigniorage in our subsidiary silver coins; because there is a good reason for retaining coins of the present weight and size simply on grounds of their portability and convenience. But a seigniorage for small coins may legitimately be based on these utilitarian grounds.[1] It is this seigniorage which, as already said, characterizes a token coinage.

(2) A token money should be coined only on government account. Whenever a considerable seigniorage exists, free coinage becomes impracticable. If the bullion is bought and coined by the state, and if the coins are then issued to the

[1] At 52 cents per ounce fine, our silver dollar (371.25 grains) is worth about 40.2 cents in gold; while a dollar made up of subsidiary silver coins (345.6 grains) with a seigniorage of over 6 per cent relatively to the silver dollar piece, is worth about 37.5 cents in gold. English subsidiary silver, as well as that of the Latin Union and others, also has a heavy seigniorage.

public at par with the standard metal, the amount of the seigniorage becomes a profit to the issuer. It needs no argument to show that this profit should go to the public treasury, and not to private individuals. Of course the seigniorage in such a case has no tangible form which can be used again. If silver bullion to the value of 40 cents in gold is coined into a silver dollar, and paid out for an article or salary equal to a gold dollar, the state does not retain in any visible shape, nor does it get back in any way, 60 cents of silver seigniorage. It got a service, or article, worth 100 cents in gold for 40 cents; and it was able to do this only by some process which kept 40 cents' worth of silver at par with 100 cents of gold.[1]

Free coinage of token money not feasible.

There is strong moral ground for demanding that, if the issuer obtained from the public the equivalent of 100 cents in gold for 40 cents' worth of silver, the issuer should return 100 cents in gold for the silver coins whenever they should be so presented by the public. This obligation, from a business point of view, would logically require the state to appropriate from other sources 60 cents on each dollar to be held in reserve for the redemption of such coins, should they ever be presented. To the amount of the profit on the seigniorage the government must always remain liable so long as the token money is outstanding.

The state liable for the seigniorage.

(3) Token coins should be given only a limited legal-tender power. If given an unlimited legal-tender power in payments, the large quantity of heavy and cumbrous coins which might be forced upon a creditor by a designing debtor would entail a serious inconvenience;[2] and such a performance should be made impossible.

[1] It follows that any proposal to "coin the seigniorage" is one to coin that which the state does not have, — as impossible a thing as to coin a vacuum.

[2] The silver dollar piece of the United States is a token coin, yet it has an unlimited legal-tender power. A debtor owing $30,000 could pay entirely in silver dollars, which would weigh about one ton. There are instances where spite has led to the payment of such sums as this on the day of maturity just before the hour of closing banks, when it was too late to deposit them.

That fractional and minor coins should be made a legal tender for debts within certain prescribed limits,[1] however, is a logical necessity; for debts may frequently amount to sums which include odd fractions of the monetary unit; and the right must belong to the creditor to enforce the payment, in legal terms, of the whole or any part of a debt.

Limited legal tender for token coins.

(4) The provision for redemption of token coins in the standard metal is the most important of all the measures affecting the quantity outstanding, and the value of the coins.

The redemption in standard coins (*e. g.*, in gold) is the one efficient means of adjusting the quantity of the issues to the actual needs of the community. No one can authoritatively indicate how much of any kind of money, or of any specific denomination, will be required by the transactions of the country. The only possible way of exactly fitting the supply to the demand is to make it possible for all who wish token coins to obtain them on presentation of lawful money, and, correspondingly, to give lawful money in exchange for them whenever they are presented in suitable sums. In this manner the coins can be obtained whenever any part of the public wish them, and on its own volition; while, if they become redundant, redemption ensures the rapid withdrawal of all that is superfluous. The practical process is easily described: if individuals possess more token coins than are needed for change, they pass them off at shops for goods; the shopkeepers at the end of the day find an increasing part of their cash in token coins, — an amount, in fact, beyond their needs in making change; hence they pass the excess of this kind of money on to the banks when making deposits. The banks are then faced with the necessity of deciding whether or not to credit sums in terms

Redemption controls the quantity of token coins.

[1] In the United States silver coins of denominations less than a dollar were made a legal tender in 1853 for sums not greater than five dollars; June 9, 1879, this was changed to ten dollars. Minor coins (in 1874) were made legal tender in sums not greater than twenty-five cents.

of gold which originated in deposits of token coins. If the banks can convert the token coins into gold, or lawful money, on presentation, then a simple machinery is created which not only prevents the amount outstanding from being in excess of the needs, but also makes these coins always equal in value to the money standard into which they are convertible. But if no system of redemption exists, the banks must refuse to receive token coins on equal terms with gold; in that case shopkeepers will decline them, and a discount on the coins will appear at once. Their value, then, is maintained only by a system of redemption.

Redemption maintains parity.

On the assumption that the quantity should not be in excess of the need for them for purposes of change, it may be said that the value of token coins is regulated by their quantity. It is true that a quantity less than is needed to meet the urgent demand for change would give them a temporary value equal to their nominal face value, or even give them a premium;[1] but it is also clear that, if issued in excess, the depreciation would be in no proportion whatever to the whole quantity outstanding. The moment the supply passed the demand, if there were no method of redemption, the depreciation would be serious, and in no regular gradation to the quantity issued.[2]

§ 3. The principles thus laid down, and now generally accepted, as regards fractional token money, have an importance and applicability far greater than that associated with

[1] After the disappearance of fractional coins caused by the depreciated paper in July, 1862, the nickel cents, which were insufficient in quantity to satisfy the demands for change, went to a premium. Cf. W. C. Mitchell, Circulating Medium during the Civil War, Jour Pol. Econ., Sept., 1902, pp. 560–562.

[2] "The size of the coin [the Roman as], as Mommsen remarks, had evidently come to be looked upon as of no more moment with regard to the determination of its value than would be, with us, the special size of a bank-note. Its value had plainly come to depend exclusively upon its exchangeability, at a fixed rate, for sesterces and denarii, just as our shillings depend for their value on their exchangeability with the sovereign at the rate of twenty to one." W. W. Carlile, The Evolution of Modern Money (1901) p. 42.

such coins. All that has been said of "small change" is true of "large change;" the demand for denominations of one dollar and upwards is quite as imperative as for those of less than one dollar. Without one and two dollar coins or notes, or even of those of five dollars, great hardships would be endured. If, also, it should happen that the money provided in such denominations bears a seigniorage, then a case of token money would appear quite irrespective of whether the denominations were small or large. Indeed, some of the most familiar forms of money in recent years are unmistakably token coins, and the right explanation of the causes regulating their value cannot be given unless their true monetary standing be frankly recognized. Large silver coins, like the American silver dollar piece, the French five-franc piece, and other coins, which are kept in circulation at par with gold, a rate quite above the market value of their content as bullion, thereby have a seigniorage — often a very large one — relatively to gold, and must be classified as token money. Cases of this sort are commonly described as creating a "limping" standard, wherein only gold is of full value. Such a situation has in fact originated from historical conditions which contemplated no such end as that of token money. Usually the coins have descended from a status[1] in which they were, or were expected to be, of a value actually equal to gold coins of the same denominations. In past attempts to keep silver in concurrent circulation with gold at some fixed legal ratio (such as 15½ to 1 in France, or 16 to 1 in the United States), it was found that the market rates changed seriously, and relatively to gold the silver coins came to have a large seigniorage. Out of this historical origin these coins have often brought with them one feature

Token money in larger denominations.

The "limping standard" a case of token money.

[1] "It is an unwonted conception to think of money which has been the principal measure of values as becoming of itself subsidiary. In Rome, however, we find that both in the case of the first transition, from copper to silver, and in that of the second, from silver to gold, the old standard money, when displaced by the new, experienced the same fate as it did in England." W. W. Carlile, *op. cit.*, p. 41.

which, in a way, is not a proper characteristic of token money, — that is, an unlimited legal-tender quality. In every other respect they conform to the typical token coins; but, even in this one respect, it will be found that the exception has no power to prevent their inclusion in the class, or their regulation by the laws, of token coins. As has been seen, the legal-tender quality has had less economic force than usually supposed; and the conclusion is unmistakable that token coins, quite irrespective of the historical processes by which they became such, should all be granted only a limited legal-tender power. Precisely because they carry a seigniorage and have a value different from the standard coins would the unlimited legal-tender quality, in some circumstances, be able to cause disaster; for whenever the supply of the token coins should happen by any event to become redundant, such laws would enable monetary demand to be transferred from the better to the poorer coins. In case of excess, then, the only safety in view of their unlimited legal power is a system of unquestioned and immediate redemption in the standard coins. Like other cases of token coins, large denominations bearing a seigniorage have their value determined by the same machinery of redemption, either direct or indirect. In all respects, except that of legal tender, these silver token coins of the limping gold standard possess the same characteristics as fractional coins: (1) a seigniorage, (2) no free coinage, and (3) a system of (indirect) redemption.

Unlimited legal tender of large token money.

§ 4. Although an unlimited legal tender, silver dollar pieces of the United States admirably exhibit the fundamental characteristics of token coins: there is a seigniorage of about sixty per cent; the coinage has been limited since November 1, 1893; no free coinage exists, and there is in effect a system of indirect redemption.

The American silver dollar a token coin.

As regards the adjustment of the supply to the demand for them, there has been more or less of difficulty. The

demand merely for the dollar piece would never have exacted the sum mechanically pumped into the circulation month after month by the Acts of 1878 and 1890. In the beginning the silver enactments met with the inability of the country to use more than a limited amount of this coin as a media of exchange; and at the present time that sum is about $80,000,000. In spite of active efforts on the part of the Treasury to push the pieces into circulation by paying their cost of carriage to any part of the Union, no coins beyond a certain limit could by any device be kept from returning to the Treasury.[1]

Supply not in adjustment to demand.

The fixed supply forced upon the country irrespective of the demand necessitated various devices by which other forms of money, serving as change in denominations of five dollars or less, could be withdrawn to make a place for the silver. The limit of demand for the coins having been reached, the willingness of the public to carry paper money (which is a legacy of the Civil War) led to the enlarged use of silver certificates, or mere receipts for the deposit of silver dollar pieces. The objection to the weight of silver was thus removed. At first only large denominations of certificates were issued; in such forms it was easy for bankers to push silver in liberal amounts back to the Treasury in payment of customs. To keep the silver outstanding the certificates had to be issued in small denominations. Already an attempt had been made to create a vacuum for silver by the withdrawal of one and two dollar United States notes. Then, in 1886, small silver certificates in denominations less than ten dollars were authorized. About this time, also, the national bank circulation was largely contracted. In such fashion, a demand was created for the new silver currency. Finally, by the repeal of the

Creation of demand.

[1] In 1897, for instance, the Treasury shipped $72,500,000 (including subsidiary silver) to various points at a cost of $81,500 for express charges; but because the channels of trade were already filled with these coins, there was returned during the year to the Treasury $73,200,000, or $700,000 more than was sent out. Cf. Report of Monetary Commission, 1898, pp. 120–121.

purchase clause, November 1, 1893, the danger of an unlimited increase of silver coins was removed. The only problems remaining were (1) to discover whether the total issue of silver dollars (which will amount in the end to about $578,000,000) could be utilized for change in denominations below ten dollars, and (2) to protect the circulation from redundancy by a proper method of redemption.

Provisions of Act of March 14, 1900.

The enactment of March 14, 1900, carried out a plan to withdraw United States notes under ten dollars, and to forbid national banks to issue more than one-third of their new notes in denominations of five dollars. The vacuum thus created would afford a field for silver certificates.[1] The same act ordered that, outside a ten per cent limit of the total sum of certificates, all large certificates presented should be cancelled, and all new ones issued should be in denominations of ten dollars or less. To the extent of this substitution an equal amount of United States notes of less denomination than ten dollars should be retired, and be converted into larger denominations. The amount of silver dollars, as a result of this process, may be somewhat in excess of the present needs of the country for "change" in denominations less than ten dollars; and proper machinery — to be next explained — should exist for redeeming any redundant sums.

How silver dollars are redeemed in gold.

We are thus brought to inquire by what method the token silver dollar pieces are maintained at par, and how the amount outstanding is made to conform to the needs of trade. That is, does the silver dollar possess that necessary requirement of a token coin which is kept at par — a system of redemption in gold? There is no doubt that it does; nor is there any doubt that this is the means by which its parity with gold has been maintained. This is true, in spite of the fact that there is as yet no

[1] For a comparison of the existing denominations of paper with the amounts of silver currency to be taken care of, see Report of Monetary Commission, 1898, p. 124.

direct redemption in gold authorized by law. The process which has operated to remove any redundant silver may be designated as indirect, or quasi-redemption. The Treasury obtains its supply of gold usually through the customs; so long as it has gold, it can pay gold. At the customs, silver dollars are receivable equally with gold, and so long as all payments are not made in silver, gold and silver are given a test of equality in payments to the government. Here, then, is an outlet for all superfluous silver dollars; if not needed, they can be sent back to the Treasury through the customs. This is one of the two essential operations in a system of redemption, — the presentation to the issuer of the undesired money. The other, and completing, operation is that of obtaining gold by the public in place of the silver sent in. Therefore, if the Treasury will pay out gold, and not silver, on any warrants presented to it, the system, although indirect, is complete throughout. So long as the Government receives silver on equal terms with gold, and pays out gold on demand, we have an effective system of redemption. Suppose the country has too much silver in circulation by $50,000,000. By working this off, in payment of customs back to the Treasury, the public have rid themselves of that quantity of silver. Then, if those who have demands against the Treasury request gold and obtain it to the amount of $50,000,000, the public will have obtained in its circulation, if needed, that new quantity of gold. The outcome, in effect, is equal to an exchange of $50,000,000 of silver for $50,000,000 of gold. What other result, except that of obvious convenience and simplicity, would be produced by a direct and authorized system of redemption? Under a system of direct redemption a surplus of $50,000,000 of silver presented for gold would produce the same results as those above; the Treasury, instead of the public, would have the $50,000,000 of silver; and the public, instead of the Treasury, would have the $50,000,000 of gold. In the end the outcome of both indirect and direct redemption is the same. The quasi-redemption has been unmistakably effect-

ive in the past;[1] although that fact does not require one to accept the indirect system as a perfect one. An open declaration of the redemption of silver dollars in gold is the only means of escaping emergencies which might wreck the indirect system now prevailing. A legal requirement, moreover, would necessitate adequate provisions for obtaining gold in emergencies (by sale of bonds, or otherwise) which would remove forever all uncertainty as to the parity of the token silver pieces.

System not perfect.

This quasi-redemption, which has been so effective in practice, has really had no little support from the language of the statutes.[2] Indeed, existing legislation has been so explicit that, in case of a possible divergence in value between gold and silver, high authorities have publicly argued that the Secretary would be obliged by the words of the statutes to maintain the parity through a direct redemption of silver in gold.[3]

It is evident, of course, that the unlimited legal-tender quality in itself can give no value to the token coins not imparted by the system of redemption. If not convertible into gold, such legal-tender money would only give trouble; since it would start Gresham's Law into operation and work to transfer the normal monetary demand from gold to the less valuable coins. On the other hand, when made only a limited legal tender, they would then conform in all respects to typical token money, and give no trouble. In the absence of a direct system of redemption, the acceptability for customs, however, is the very

Effect of legal-tender quality.

[1] See the account of the process by Secretary Fairchild in the Report of the Secretary of the Treasury in 1887.

[2] In the Act of July 14, 1890, it was declared to be "the established policy of the United States to maintain the two metals on a parity with each other upon the present legal ratio, or such ratio as may be provided by law." Again, the Act of Nov. 1, 1893, required the parity to be "secured through international agreement, or by such safeguards of legislation as will insure the maintenance of the parity in value of the coins of the two metals, and the equal power of every dollar at all times in the markets, and in the payment of debts."

[3] Cf. the letter of Secretary Carlisle to Mr. James P. Helm, made public in September, 1896. See Report of Monetary Commission, 1898, p. 123, n.

measure which has created a quasi-redemption. In that sense, redemption has come into existence only through a legal-tender enactment making the silver receivable for a particular kind of payment.

§ 5. The "limping" gold standard in another country, France, also presents a striking case of token coins in its silver five-franc pieces. The principles in operation are fundamentally the same as those affecting the American silver dollar piece, although the details of the process, owing to the existence of the Bank of France and the Latin Union, are necessarily somewhat different. French five-franc piece.

There has been under the treaty no coinage of the five-franc pieces since 1878 (and, in fact, not since 1876); not only has there been no free coinage, but no coinage at all, since the former date. Having been coined according to the traditional ratio of 15½ to 1, while the market ratio is now over 30 to 1, the five-franc silver pieces bear a seigniorage of much over fifty per cent. Their legal-tender power, as the consequence of a futile attempt at bimetallism, still retains the original unlimited legal-tender quality. But, as every one knows, this legal quality would not alone preserve their parity with gold. How has this parity been secured? Evidently, as in the case of the American silver dollar, by some system of redemption. A full legal tender.

The relation of the quantity of the coins to the demand for that denomination has been adjusted within safer limits than in the United States. The total circulation of five-franc pieces, as given by M. de Foville,[1] in 1890, including coins of the other states of the Latin Union circulating in France, was about $419,000,000 (2,095,000,000 francs), of which only $280,000,000 (1,400,000,000 francs) were French coins. Evidently a circulation capable of absorbing not only their own coins, but also $139,000,000 of foreign coins, is able to give permanent Quantity adjusted to supply.

[1] Cf. Journal de la Société de Statistique de Paris, January, 1886, for his method.

employment to the coins of its own stamp.[1] The Bank of France held $158,000,000 of these French five-franc token coins, leaving about $122,000,000 in general circulation; although the five-franc pieces of other countries in general circulation increased this last amount to $176,800,000. If left to care for coins bearing only her own stamp, France would find the demand for that denomination more than enough to use them in the currency. In order to secure an unoccupied field for the circulation of these silver token coins, France has not coined any five-franc gold pieces since 1870; and since that date almost no gold coins of a denomination below twenty francs have been minted. Moreover, no notes of the Bank of France of those small denominations are issued.

Practical system of redemption for silver coins.

The Bank of France, however, in the process of indirect redemption, plays much the same part in regard to the five-francs coins as does the Treasury of the United States in respect to silver dollars. The Bank furnishes a place of refuge for five-franc pieces, if redundant. All the state treasuries, as well as the Bank of France, are obliged to accept five-franc silver pieces in payments to them at their nominal value equal to gold. Here again we have the first part of a practical system of redemption, — the means of working off superfluous coins. The complementary part is connected with the practice of the Bank of France in paying out gold when requested. So long as the Bank does not force the payment of silver on the public, the process of indirect redemption by which the token silver coins are kept at par with gold remains effective. It is true that in France, as in the United States, there is no legal direct system of redemption, but in both cases a practice exists which is equally serviceable. Although in the past gold has been skilfully accumulated by the Bank of

[1] Including subsidiary silver coins, the total silver circulation was about $500,000,000. Of the total sum of $419,000,000 in five-franc pieces in France, the Bank held $242,500,000 (1,211,000,000 francs), and the public used $176,800,000 (884,000,000 francs).

France, practically no attempt has been made to force silver on the public in payments by the Bank. While for ordinary sums there has been no difficulty in getting gold, it is true that a slight premium has been charged if large sums of gold were demanded for exportation. This charge, however, has never, I believe, exceeded one-tenth of one per cent, and has often been much less. That is, the policy of the Bank does not create a positive prohibition against obtaining gold, but only a slight obstacle sufficient to induce applicants to seek other sources of supply if they are unwilling to pay the charge. Still, it is distinctly understood that in case of need gold can be obtained even for exportation at a very slight expense. In such ways the accumulation of gold has been favored without establishing any practical discrimination against silver. Under such a system the gold reserves have risen to a sum which insures the definite stability of the silver token coins.

To make assurance doubly sure, the redemption of the silver coined by each member of the Latin Union, in whatever state it may be circulating, is provided for by the formal treaties of the Union. Indeed, so important is this question of the ultimate redemption of the token coinage, in case of a dissolution of the Union, that it has been made the pivotal part of the negotiations in all the later treaties; and it was this question which led to the temporary withdrawal of Belgium and her reluctant return to the Union. The redemption system, therefore, by which the silver five-franc pieces (and the subsidiary coins as well) are maintained at a parity with gold now and in the future is firmly established. It is this indirect system of redemption which preserves their value, and not their quantity or their unlimited legal-tender quality. If this redemption were taken away, these other conditions (*i. e.*, the legal tender and the quantity) would not save them from depreciation relatively to gold. Their operations form another clear illustration of the principles of token money.

Ultimate redemption also secured.

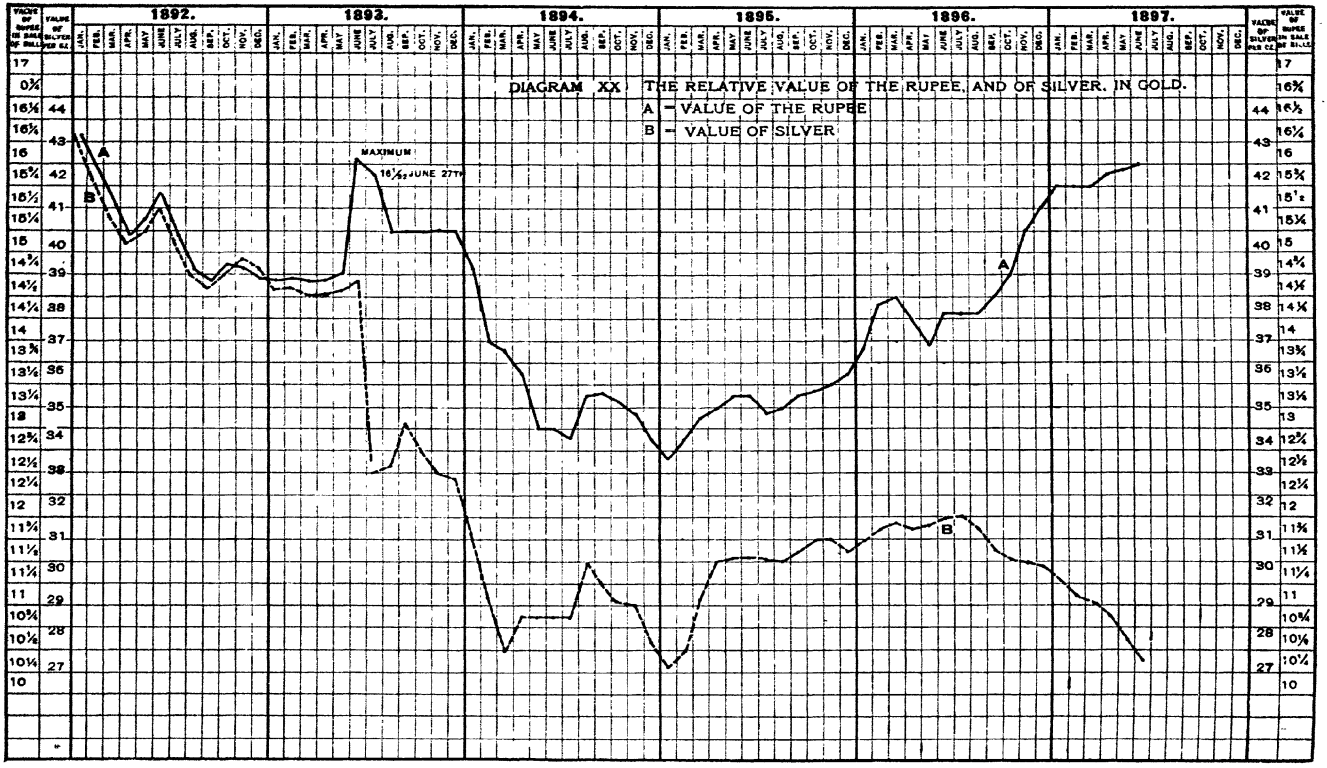
§ 6. The history of the Indian rupee since June, 1893, also presents a most interesting case of token money, similar in essential points to that of the French five-franc piece and of the American silver dollar; but the practical working of the scheme in India discloses many differences in the details through which the same fundamental principles have expressed themselves.

The Indian rupee.

As well-informed persons know, the mints of India were not closed to the coinage of silver rupees June 26, 1893. It is true, however, that the measure bearing that date created a system adapted to reduce the quantity of rupees at least to the actual demand for coins of that denomination, and in the end to keep their value equal to that amount of gold which must be given for rupees at the mint. The gist of the action of June, 1893, was not the cessation of the coinage of rupees, but the offer of them in any quantity desired in return for gold at the rate of 16*d.* per rupee, or 15 rupees to a pound sterling in gold. Free and unlimited coinage at that rate was not prohibited; but free coinage, in the usual sense, was taken away. Private individuals could not present at pleasure silver bullion (at the rate of 165 grains of fine silver per rupee) and obtain rupees in return. In addition, gold sovereigns and half-sovereigns of current weight were received at the treasuries in payment of government dues at the rate of 15 rupees for a sovereign. This measure undoubtedly suggested the possibility of some more practical tie between gold and silver rupees at that relationship.

Act of June 26, 1893.

So long as the rupee had free coinage, the value of the coin followed the value of the silver bullion which it contained, as may be seen by the like movements of the two lines in the accompanying Diagram XX before June, 1893. The interesting monetary problem is to be found in explaining the causes of the divergence of the two lines after 1893, and the final rise of line A to 16*d.* and its general continuance since then at about that level. In brief, the explanation is to be found in the essential


1892.
1893.
1894.
1895.
1896.
1897.
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEP. OCT. NOV. DEC.
VALUE OF RUPEE IN GOLD IN PENCE
VALUE OF SILVER PER OZ.
17
0¾
16¾ 44
16½ 43
16 42
15¾ 41
15½ 40
15¼ 39
15 38
14¾ 37
14½ 36
14¼ 35
14 34
13¾ 33
13½ 32
13¼ 31
13 30
12¾ 29
12½ 28
12¼ 27
12
11¾
11½
11¼
11
10¾
10½
10¼
10
A
B
MAXIMUM
16⅛ JUNE 27TH
DIAGRAM XX THE RELATIVE VALUE OF THE RUPEE, AND OF SILVER, IN GOLD.
A – VALUE OF THE RUPEE
B – VALUE OF SILVER

features of token money which were present in the rupee after 1893.

In the first place a seigniorage immediately manifested itself. The fact of seigniorage, or a difference between the value of the coin and the value of its content, is not changed by the fluctuation in the amount of that seigniorage. Never did the coin again fall to the market value of the bullion it contained, although for a time, in 1894 and 1895, the fluctuations of the coin relatively to gold followed the general movement of silver in relation to gold. What caused this seigniorage will be discussed later.

Existence of seigniorage.

Next, the quantity was slowly adjusted to the monetary demands of the community for a coin of that denomination and value — which was practically the one coin in common use. As is well known, the passion for ornament in India has led in the past to the hoarding of silver rupees for manufacture into ornaments. When free coinage existed, the melting of rupees provided the same amount of silver in exchange for services, or for gold, as an equivalent weight of silver bullion. When the rupee rose in value, this was no longer true. To buy silver in the form of coins was no longer the cheapest way of obtaining silver. The closing of the mints to the coinage of silver for private persons did not, of course, change the passion of the people for silver ornaments, nor did it alter the monetary habits of a people accustomed to a silver coin of about the value of the rupee. At the start, the effect of the new action (in June, 1893) would not be well understood; for established habits are not easily changed in India; and coins were doubtless hoarded for ornament as before, until the quantity of rupees in circulation was so much reduced as to cause serious inconvenience. When the supply of rupees, under past customs, fell to, and even below, the amount needed in daily transactions, the demand could be afterwards satisfied in only one way, — by paying 16*d.* in gold for rupees at the mint.

Adjustment of supply to demand.

We are thus led to see the operations of a system practi-

cally equal to indirect redemption. The rupees could be got only by paying 16*d.* in gold for them; their quantity had been reduced to the monetary demand; and they were receivable for taxes at their nominal value in gold. Redundance was prevented; but a constant test of their parity with gold was established by receiving them at the state treasuries on equal terms with gold. Once that this lift in the value of the rupee to 16*d.* had been made, and the supply prevented from being redundant, a scheme for direct redemption in gold could be very easily carried into operation. Indeed, if a direct offer of gold for rupees were now made, it is doubtful if in normal times any considerable amount of them would be presented; and hence a relatively small gold reserve would secure their permanent equality with gold. Such a reserve the government of India is now accumulating.

Indirect redemption.

The appearance of a seigniorage immediately after June, 1893, was, in my judgment, due to a well-grounded belief that some system was in view by which the coined rupee would be given a value greater than the bullion it contained. Just what the effect of the action in 1893 would be was not clearly understood, and the future plans of the government were not then fully disclosed. Therefore, the future value of the rupee from that date, although uncertain, still had enough of a possibility of improvement in it to make those who were disposing of rupees set a price on them quite above the market price of the bullion. Thus the value of the rupee fluctuated according to the changes of belief in their future parity in gold, and according to the nearness or distance of that consummation. In 1894 public opinion was undoubtedly sceptical; but in 1895 the tide changed and in the middle of 1896 the value of the rupee steadily mounted to par. The reasons for this final movement upwards are clearly enough connected with the preparations for the definitive establishment of a gold standard for India. This naturally reduced the rupee to the position of a typical token coin, attached to

Why the seigniorage appeared.

the value of the gold standard into which it was practically convertible. It had (1) a seigniorage; (2) no free coinage; (3) limitation of quantity; and (4) a system of practical redemption; although (5) the rupee had an unlimited legal-tender power.

Later events, although not yet bringing a system of direct redemption, have strengthened the operation of the quasi-redemption. It is not enough to receive silver rupees on equal terms with gold (at the rate of 16*d.*) to constitute an efficient machinery for maintaining the rupees at a fixed value; since the complementary arrangement must exist by which the public, after having been able to work off redundant rupees at the rate of 16*d.* in gold, should be unquestionably paid in gold for any obligation against the government Treasury. The result of such a method, if tried, would be a lessened quantity of rupees in the hands of the public, and an increased quantity of gold in their stead. For financial reasons, however, the government of India has not yet been able to set aside an adequate gold fund, and so it has not openly promised the direct redemption of the rupee in gold; but it has, in other and indirect ways, tried to produce the same result. While timidly avoiding a legal enactment to pay gold, it has been providing the complementary part of a system of indirect redemption which enables the public to get gold from the government. That is, the government is instructed to give gold for rupees, whenever the silver rupee falls in value, making gold freely available for foreign remittances.[1] This plan offers even less difficulty than that presented by the Bank of France to those wishing gold for exportation.

The system of indirect redemption.

Moreover, various evidences of the intention to keep the

[1] Despatch of Lord George Hamilton, Secretary of State for India, July 25, 1899: "8. I am also in accord with the Committee as to the general principles by which your Government should be guided in the management of your gold reserve in the absence of a legal obligation to give gold in exchange for rupees, namely, that you should make it freely available for foreign remittances whenever exchange falls below specie point, under such conditions as the circumstances of the time may render desirable" (p. 4).

rupee at a permanent relation to gold multiply.[1] In fixing the pay of the army, fifteen rupees are made equal to one pound.[2] Finally, September 15, 1899, the gold standard was established in India.[3] The English sovereign was made a full legal tender at the rate of 1*s.* 4*d.* per rupee; and the Indian mints were opened to the free coinage of gold.

Gold standard set up.

A Gold Reserve Fund (separate from gold held for currency notes) has been established into which the profits arising from the seigniorage on coining silver rupees will be paid. "That fund will serve as a guarantee for the conversion into gold, if required, of the rupee token coinage with which . . . we have supplied the public so largely."[4] The stress of the famine in 1900 required the government to draw on this fund, but the future large profits[5] on coinage will soon provide a fairly adequate reserve. The larger it grows, the more certain will redemption become, and exchange will cease to fluctuate for any reasons connected with the value of the rupee. Now that the supply of rupees has been adjusted to the demand, it is difficult to understand why direct redemption should not be legally established at an early date.

Gold reserve for direct redemption.

§ 7. The principles regulating coins which have a seigniorage have suggested the theory that paper money, which

[1] By the Notification of Sept. 11, 1897, silver rupees were issued in exchange for gold sovereigns and half-sovereigns at the Reserve Treasuries, at the rate of 1*s.* 4*d.* to the rupee. This was in addition to the original process of obtaining them at the mints.

[2] Act No. VII, of 1900, March 22, 1900, Section 2: "For the purposes of the Army Act, or of any similar Act for the time being in force, fifteen rupees of British Indian currency shall be deemed to be the equivalent of one pound of British currency," etc. (amending the Act of July 28, 1899).

[3] Act No. XXII, of 1899, Section 2: "Gold coins, whether coined at Her Majesty's Royal Mint in England, or at any Mint established in pursuance of a Proclamation of Her Majesty as a branch of Her Majesty's Royal Mint, shall be a legal tender in payment or on account at the rate of fifteen rupees for one sovereign."

[4] Indian Financial Statement, 1901-1902, p. 11.

[5] At present prices of silver (52 cents an ounce fine in New York) there is a seigniorage on the rupee of about 44 per cent.

has a seigniorage of one hundred per cent, has had its value determined in the same manner as that of the coins. With the advocates of the quantity theory, this was merely a belief that the value of paper money was regulated by its quantity.[1]

As regards convertible paper, it is evident, on the mere statement, that its value conforms to the coin into which it is immediately redeemable. Such promises can never depreciate below the value of the metal which can on demand be obtained for them. In this case it may be said that redemption (immediate, not ultimate) is the law of its value, as it is at once, also, the automatic regulator of the quantity outstanding so that it will be adjusted to the actual demand.

Immediate redemption fixes value of convertible paper.

Inconvertible paper, however, may be said to manifest the essential characteristics of token money: it has (1) a seigniorage (conceivably of one hundred per cent), (2) no free coinage or unlimited printing, (3) a legal-tender quality (usually unlimited), and (4) only a potential system of redemption. In the last two points, in which it diverges from a correct system of token money, are to be found all the elements likely to create disorder in the monetary world. It is unmistakably clear that if this form of token money — being the one carrying the largest possible seigniorage, that of one hundred per cent — were put under the control of the established laws of token money, as previously described, it would be capable of creating no more difficulty as currency than any minor token money.

In the matter of the quantity outstanding, the amounts of each denomination issued must be kept to a sum no greater than is needed by the business of the community; and the total issues must be no greater than the sum of all the amounts found necessary in each denomination. This adjustment of the supply to the demand for a medium of exchange (but not for the standard) can be regularly maintained only by the automatic action of a system of redemption. Of course, it then ceases to be inconvertible

Redemption controls quantity.

[1] Cf. F. A. Walker, Polit. Econ. (Adv. Course), Part III, chap. v.

paper. But so long as it is inconvertible there is no means of ascertaining whether the quantity outstanding is redundant or not; and consequently there are no means of preventing depreciation.

Prospective redemption sets value on inconvertible paper.

The explanation of the fact that paper which cannot be converted into gold has any value whatever is to be found in the possibility of redemption. The stock of a railway which pays no dividends may sell far above zero for no other reason than that purchasers by that price express their belief in the chances of future earnings and their distribution in dividends to shareholders. Likewise inconvertible paper, being a token money, is influenced in its current value by the one most important element regulating the value of token money, — the possibility of redemption. Indeed, fluctuations may take place from any considerations touching either the ability or the intention of the issuer to undertake to fulfil the promise stated on the face of the notes; and from any considerations affecting the nearness or remoteness of convertibility. In brief, these contingencies may be classified as follows:

(1) The observed intention of the government to resume.

(2) The resources of the country, which affect the ability of the Treasury to collect specie.

(3) The existing fiscal emergencies, such as the favorable or unfavorable course of a war.

(4) The state of public opinion, or the readiness to be taxed.

(5) The condition of the national credit.

In any instance of inconvertible paper a careful examination of the line of depreciation will show a change in the value of the paper because of influences capable of being placed in some one of these classes, — and this, quite irrespective of the quantity outstanding or of the monetary demand. The trend of public opinion toward a belief that future redemption is becoming more certain will send up the value of the paper; and *vice versa*. This, in my judgment, is the only practicable explanation of the varying value of

an inconvertible paper relatively to a metallic standard. Having a high seigniorage, its value is regulated by the fundamental principle of redemption, varying according as it is believed to be near or remote.

§ 8. An illustration of the preceding principles may be obtained from the recent history of the Austrian paper money. In 1848 the legal-tender bank notes of Austria became inconvertible. Although little coin was in circulation, the silver standard had been adhered to, as established in the florin of 14.031 grams ($\frac{1}{12}\frac{0}{8}$ fine). If the notes had been redeemable, they would have been paid in silver. Obviously a paper money would take the value of the coin into which it was convertible; if inconvertible and depreciated, its depreciation would be compared with the coin adopted as the standard. On the other hand, if the question were raised as to which of two different standards, silver or gold, the notes would be converted into, it is equally clear that the value of the paper would be influenced by the chances as to which of the two standards would be adopted. The depreciation proceeds on the basis of an estimate by the public as to the nearness or remoteness of redemption in coin; and so long as silver was the accepted standard metal, the depreciation was related to the value of silver. From 1848 to 1858 the discount on the paper issues averaged 14.73 per cent; from 1859 to 1865, 23.09 per cent; from 1866 to 1870, 20.21 per cent as compared with the silver florin. Moreover, as gold and silver had not then shown much divergence from the legal ratios of that day, the discount of the notes relatively to gold remained about the same as they were relatively to silver.

Austrian paper money when irredeemable in silver.

The interesting point in the Austrian experience appears as soon as silver fell in value relatively to gold. It will then be disclosed how distinctly the value of the paper was connected, not with its quantity outstanding, but with the value of the metal in which it was prospectively redeemable, or, while the paper was irredeemable, with the value of that metal which

public belief held would be the standard sooner or later. Hitherto that metal had been silver; about this time many indications cropped out to show that, if ever redeemed, the notes would be redeemed in gold and not in silver. Yet all this time the promise on the face of the notes was a promise, although unfulfilled, to pay silver florins; this remained true so long as the standard was not legally changed to gold.

Possible change of standard in future to gold.

As early as 1867 the Treaty with France was an unmistakable expression of the desire of Austria-Hungary to break away from silver and to introduce the gold standard. Although the mint ratio proposed (about 1: 15.31) differed so far from the market ratio (above 1: 15½) as to render the plan nugatory, it was a straw to show the direction of the wind. It gave ground for the belief that gold might ultimately become the standard for the country. In 1867, also, in the Treaty of Commerce between Austria and Hungary (Article XII), the future monetary policy of the Empire was foreshadowed when expression was given to the conviction that, in an advanced community, silver could not be retained as the permanent standard of value. The same policy was disclosed when, in 1870, gold coins, although not made legal tender, were minted. When, after 1874, silver began to decline in the bullion markets, and when, in 1879, Austria-Hungary closed her mints decisively to the free coinage of silver, the future attitude of the government towards gold was shown to be unmistakably favorable. Hence it was clear that the value of the notes would follow the value of gold in which their redemption, whether certain or uncertain, was ultimately to be established. In general, depreciation has registered the doubts and uncertainties as to redemption, and that registration could be attached either to silver or gold; if the chances of redemption in either silver or gold were equally remote, the depreciation itself would be the same for either metal; but if gold were more valuable than silver, and if the chances of redemption in gold became equally good with that in silver

(or even better), then the paper, while preserving a depreciation relatively to gold proportionate to the chances (be they dim or bright) of redemption, would rise above the silver level toward that of gold; the paper, in fact, necessarily conformed in value to the chances of redemption in gold, and its connection with silver was broken.

Paper became related to gold.

On the basis of these essential principles of token money, the movement in the value of Austrian paper money becomes easily explicable. As soon as the paper became tied in value to gold, the fall in the value of silver went on without dragging the paper down with it. By 1878 silver had so far declined relatively to both gold and the paper money that the paper came to par with silver; although the paper still maintained a depreciation relatively to gold. Then, later, the further decline of silver brought its value below that of the irredeemable paper. Here, then, was the event which to some seemed so surprising and paradoxical: the inconvertible paper money had a value greater than that of the silver coin by which it was legally to be redeemed. By circumstances not then understood, silver began to flow into the mints of the country for coinage. To the surprise of a people that had been unable for decades to redeem its paper, silver coin appeared in abundance. This was the reason why the government, in 1879, with a distinct gold policy in mind, and in order to avoid any difficulties arising from the accumulation in the reserves of a large stock of a depreciating metal, promptly closed the mints to the free coinage of silver. The practical determination to adopt gold as the standard in which the notes would be redeemed, if ever, in the future, was the fact which tied the value of the paper to the gold standard. This possibility of redemption was the determining cause of the value of the bank notes. How correct was the public anticipation of the ultimate adoption of the gold standard and the redemption of the paper money in gold may be seen by the actual legislation of 1892, establishing the gold standard; and at

Paper had value greater than silver.

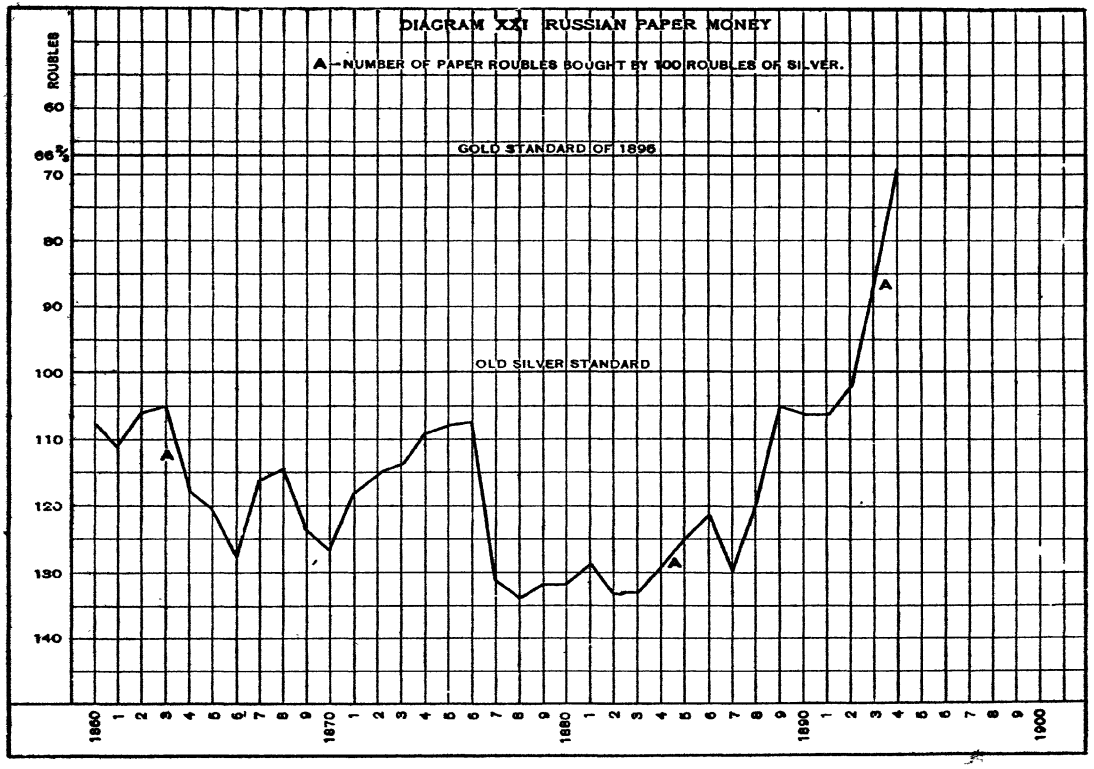
the present writing (1902) the reserves of gold have been already collected in quantity sufficient to begin the redemption of the paper money.

§ 9. In Russia, from 1857 to 1896, the paper rouble was irredeemable; but during that period there was not always a certainty as to the metal in which the redemption, if it was brought about, was to be effected. For most of the time silver had been the usual standard and legal coin. On December 7, 1885, it was enacted that the silver rouble, as the monetary unit, should contain 277.722 grains of pure silver (while gold coins were permitted at a ratio of 1 : 15.4958). Naturally, the value of the paper rouble fluctuated (so long as silver payment was generally expected) relatively to the value of the silver rouble, approaching it if the credit of the country improved, and falling off if the chances of redemption became remote by reason of new, or excessive, issues. The paper was not then associated with gold; indeed, the value of the paper relatively to gold could be found only by noting the changes in the ratio of gold to silver (about which last the paper revolved).

Russian paper once followed silver.

In this period, however, certain measures were inaugurated which led the financiers to believe that gold, instead of silver, might be adopted as the metal in which Russian obligations and paper money would be ultimately made redeemable. November 22, 1876, customs duties were ordered to be paid in gold; proposals for monetary reform were many; and, after 1887, the deficits ceased. Moreover, since 1881, in order to improve her credit as a borrower, Russia had commonly drawn her loans in terms of gold roubles. Indeed the rise in price of Russian bonds had been due to carefully arranged fiscal provisions. The monetary question was: would the demand paper money eventually be put upon the same basis as the time loans? In fact, the final change in the dependence of the paper rouble upon silver to a dependence upon gold (definitively begun in 1893) centred in the desire to improve the value of government obligations

Provisions for a change to the gold standard.


DIAGRAM XXI RUSSIAN PAPER MONEY
A—NUMBER OF PAPER ROUBLES BOUGHT BY 100 ROUBLES OF SILVER.
ROUBLES
60
66⅔
70
80
90
100
110
120
130
140
GOLD STANDARD OF 1895
OLD SILVER STANDARD
A
A
A
1860
1
2
3
4
5
6
7
8
9
1870
1
2
3
4
5
6
7
8
9
1880
1
2
3
4
5
6
7
8
9
1890
1
2
3
4
5
6
7
8
9
1900

abroad, and to aid in refunding the debt at lower rates of interest.

Hitherto the only legal unit for contracts had been the silver rouble. In fact, debts were liquidated by irredeemable paper taken at its current value in silver (since no silver was in circulation); and, of course, the conversion of any sum into gold was confusing. Redemption in gold established. In fulfilment of the plans begun in 1893, a ukase of May 8, 1895, permitted the making of contracts in terms of gold roubles, and made certain taxes and dues payable in gold. Meanwhile a large gold reserve had been collected by the government. August 10, 1896, the depreciation of the paper by one-third being accepted, it was made redeemable at the rate of 66⅔ gold roubles for 100 paper roubles, which was about the current value of the paper in gold. Thus a gold 10-rouble piece exchanged for 15 roubles of paper; and the 5-rouble piece at the same rate (7½ roubles of paper). Later (January 3, November 14, and December 11, 1897), the nominal values of the gold coins were adjusted to that of paper, whereby the old 10-rouble gold coin was called a 15-rouble piece (and the old 5-rouble piece a 7½-rouble piece), without changing its weight and fineness. The old gold coins were thus reduced by one-third to conform to the current value of the paper; and the redemption of the paper rouble in gold was made permanent at that rate.

We are now concerned with this history only in so far as it illustrates the operation of the fundamental law of redeemability in regulating the value of token money. Paper followed value of gold. In Diagram XXI, line A shows the depreciation in the value of 100 paper roubles below the level of the 100 silver roubles in which they were only nominally redeemable. It should be remembered, also, that this fixed quantity of silver used as a standard for the paper was itself falling in value relatively to gold after 1873. The value of the paper relatively to goods would be affected by two sets of conditions: (1) those touching the possibility of conversion into silver; and (2) those connected with the change from the

silver to the gold standard. After 1892 it became morally certain that the paper, when redeemed, would be redeemed in gold. On this expectation, as yet without actual legislation, the value of the paper rouble rose above the line of par in silver; and there then appeared — what has been spoken of as an anomaly — the case of a paper money possessing a value greater than the silver coins on which it was legally based. The only explanation, of course, was to be found in the possible redemption of the paper in a standard having a value higher than silver. The paper satellite ceased to revolve in an orbit about silver, and attached itself to the centre of a new system, — the gold standard. Although redemption in gold was not authorized until 1896, the value of the paper since 1893 has been determined by the chances of redemption in gold; and the quantity issued has been influential only in so far as it has affected the potential conversion into gold.

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