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THE PROBLEM OF SCIENCE AND ETHICS

BY

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ABBREVIATIONS

Aristotle: Aristotle: Ethica Nichomachea, Danish edition, 1936.

Bentham: The works of Jeremy Bentham; ed. by John Bowring, Edinburgh 1843.

Berkeley: George Berkeley: The works of George Berkeley, ed. by A. C. Fraser, 4. Bd. Oxford 1871.

Frithiof Brandt: Frithiof Brandt: Psykologi I. 1934. II. 1940.

Brunschvicg: Léon Brunschvicg: L'experience humaine et la causalité physique. Paris 1922.

Cassirer: E. Cassirer: Das Erkenntnisproblem. 2. udg. I og II Bd. 1911, III Bd. 1920. Berlin.

Descartes: Réné Descartes: Discours de la Méthode, Leyden 1637.

Deussen: Paul Deussen: Allgemeine Geschichte der Philosophie, I og II Bd. Leipzig 1911.

Mc. Dougall: William Mc. Dougall: Body and Mind, 7 ed. 1928.

Fraser: A. C. Fraser: Prolegomena, Expository and Critical, to John Locke: An Essay concerning human understanding, 1894.

Gomperz: Th. Gomperz: Griechische Denker. Eine Geschichte der Antiken Philosophie, I 1896, II 1902, III 1909, Leipzig.

Green: T. H. Green: Introduction to David Hume: The philosophical works of, I s. 1-305, 1890.

Hume: The philosophical works of David Hume, ed. by T. H. Green and T. H. Grose, I og II Bd. (book I.II and III) 1890.

Ihering: Rudolph von Ihering: Der Zweck im Recht, I and II, 5. ed. 1916.

Iversen: Herbert Iversen: To Essays om vor Erkendelse (Two essays concerning our cognition), 1919.

Kant: Kants gesammelte Schriften. Herausgeben von Königlich preussischen Akademie der Wissenschaften. Erste Abteilung: Werke. Band III: Kritik der reinen Vernunft. Zweite Auflage 1787. Berlin. 1904. Band IV: Kritik der reinen Vernunft, Erste Auflage 1781. Berlin 1903. Band V: Kritik der praktischen Vernunft. Berlin 1908.

W. Köhler: Wolfgang Köhler: Psykologische Probleme, 1933.

Locke: John Locke: An Essay Concerning Human Understanding, ed. by A. C. Fraser, I and II, Oxford 1894.

Mill: John Stuart Mill: A System of Logic, 1843.

Moore: G. E. Moore: Principia ethica, 3. ed. 1929.

Perry: Ralph Burton Perry: General Theory of Value, 1926.

Platon: Platons works. Danish edition. 1932-41.

Rashdall: Hastings Rashdall: The Theory of Good and Evil. A Treatise on Moral Philosophy. 2. ed. London 1924, 1. and 2. bd.

Russell I: Bertrand Russell: Our Knowledge of the external World, 1915.

Russell II: Bertrand Russell: An Outline of Philosophy, London 1927.

Schopenhauer: Schopenhauer: Die Welt als Wille und Vorstellung, I and II ed. by Ludwig Berndl, 1912.

Spinoza: Benedict Spinoza: Ethica. Ed. by J. H. v. Kirchmann, Berlin 1877.

Wundt: W. Wundt: Geschichte der Griechischen Ethik. I. 1908, II, 1911. Leipzig

1. book: Fr. Vinding Kruse: Erkendelseslæren og Naturvidenskabens Grundbegreber (The theory of knowledge and the fundamental concepts of natural science), 1941.

E. R.: Fr. Vinding Kruse: The Right of Property, 1939.

PART 1

THE PROBLEM OF ETHICAL VALUES

CHAPTER 1

THE PROBLEM OF CIVILISATION: CAN THE ETHICAL VALUES, MORALS AND JUSTICE, BE SCIENTIFICALLY FOUNDED ON REASON?

In the time in which we are living the foundations are shaking under the values of morality and justice. This is not strange, for there has hardly ever in the history of mankind been a time which is so marked by the greatest spiritual confusion and cleavage in all spheres of life as ours. In both the political and social, the moral and religious spheres, fundamentally different views of life in the twentieth century stand opposed to each other; and at the same time a grave doubt has arisen in the intellectual world, including the world of science, about these very values wich have hitherto been regarded as the sustaining basis of all human activity, the values of morality and justice, both personal and social. In fact, all that has hitherto formed the fundamental principles of the life of men is being shaken by the doubts and conflicts about these values in our times.

1. To begin with the conditions in the outer world of power, with the *political* question, that is, the problem of the right form of government, the whole of our planet, as has been said, is divided and contending between two deeply different systems or views of life; the democratic system (in a wide sense)—which is the ruling one in the Anglo-Saxon, the Scandinavian and several other countries—and the authoritative or dictatorial system, ruling in Russia, Spain, Portugal and, if not formally, then at any rate practically, in a number of other states. Here an objective description will first be given of the actual contrast between these systems of government.

Taken in detail there are considerable differences between several constitutions within the democratic countries, thus, for instance, there are in certain respects great differences between the constitutions of England and the United States of America, and between those of

Switzerland and the Scandinavian countries. Taken as a whole, however, the constitutions of all the countries under democratic rule have several basic features in common, features which as a rule can broadly be indicated thus: within certain limits the nation chooses with comparative freedom among persons and political opinions at the election to the legislative assembly: hence various parties arise which contend with each other for the adherence of the majority of the people to their political principles, their party programme and thereby for the right to obtain influence on the laws of the land. According to this system it is possible for the majority of the nation through the legislative assembly elected by itself, to decide on the main lines of the legislation and of the government of the community as a whole. Just as the different political parties are allowed to fight freely for their opinions, particularly through the press and at public meetings, there is altogether in these countries so-called freedom of expression, that is, a freedom for the individual citizen to communicate his thoughts and opinions to others and to fight for their propagation. Meanwhile the influence of the people on legislation and its freedom of expression have in recent times been considerably restricted in the so-called democratic free countries by the development which has gradually arisen there through the party-system and the press.

In the countries under authoritative or dictatorial rule there is only one party, namely the party in which the ruler is the supreme head of the state, and only one political, fundamental creed is publicly acknowledged. The old political parties prevailing in the earlier democratic period of these countries have been dissolved, and the formation of new parties is not allowed. Freedom of expression in the sense mentioned above, that

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One must separate *parliamentary* from *democratic* rule. England and the United States have both democratic rule, but only England has parliamentary rule. By the latter it is understood, in the main, that the government is chosen by the legislative assembly, elected by a majority of the people. This is the case in England, where the members of the Government issue from the majority in the Lower House, but not in the United States, where the ministers are not elected by Congress, but are both really and formally chosen by the President, just as the latter is not elected by Congress, but by the people, by direct election. So that, as it is then possible to have a democratic without a parliamentary rule conversely one can have a parliamentary one which is not democratic, e.g., the rule which prevailed in England before the Reform Act of 1832, when only a minority of the people (by means of a sharp, partly arbitrary election census) had the right to vote.

is, a freedom for everyone to express whatever political or social opinions he likes, through the press, meetings and other public means of expression (the radio, the films, the theatre) is in these countries to a rather wide extent subject to the direction of the government. Legislation is determined by the ruler of the state and his counsellors, and even though these states too have assemblies chosen by the people, often according to instructions by the government, these assemblies are, if not formally, then in fact practically, only consultative as far as legislation is concerned.

Mankind, then, in our times stands, in the first place, in a political respect divided among these fundamentally contradictory views of life. By these extreme contrasts people and society in the twentieth century are confronted with the greatest questions, not only as problems for discussion, but as nothing less than *questions of life and death for humanity, for its fate, for its civilization.*

These questions are:

1. Is the road leading to the rescue of society and the way by which civilization may be preserved still the way that was shown to mankind by the new communities in the seventeenth, eighteenth, and nineteenth centuries, when they fought their way through rebellions and revolutions against the absolute rule prevailing in the states in their times, and carried on their banner the declaration of rights or do the new strong authoritative forms of government lead on to the road ahead?

By the revolution of 1688 the English people put an end to absolute monarchy (that of the Stuarts) and in advance of all other nations created a free constitution the most characteristic feature of which was that the laws could only be made with the consent of the representatives elected by the people, that is, the Parliament, and especially that no tax could be imposed without its consent, that the courts of justice were to be independent of the government; and that the personal liberty of the citizens, their freedom of expression and their property should be protected by the laws and the courts of justice from arbitrary interference on the part of the government. The most essential of these principles were already established in 1689, in the Declarations of Rights to which the new king, William III, had to subscribe. The same principles appeared again in the Declaration of Rights which the Free States of North America, after breaking away from England in 1776, gradually inscribed in the laws of their constitution. In the French Revolution they were expressed with enthusiasm in the declaration of the National Assembly in 1789 about the indispensable human and civic rights, and in the nine-

teenth century they spread to most of the European states, in their democratic constitution, modelled on that of England.

The experiences which the states have gained since then under these constitutions have not been entirely good. The happy social conditions of which people dreamed in the dawn of the free constitutions have not materialised. In the states of the present day the free government of the people, as in the states of ancient times in their democratic period, has brought with it frequent strife between parties and classes, and against this background dictatorship has arisen in states where this strife has been particularly violent and where it has had disintegrating effect on the very order and security of society.

Are these fundamental principles, then, of the free government by the people in the declaration of the rights of man, still the road to be followed by the communities in their constitutional life? Or must the so-called free constitutions which issued from England in the seventeenth century, and gradually gained ascendancy in most states in the eighteenth and nineteenth, now in the twentieth century make way and give place again to the absolute rule, such as this has again arisen in Russia, the eastern states dependent on Russia, and in Spain, Portugal, and several other countries, where the political, social and spiritual direction of the whole nation from above has succeeded the great conflicts between the various parties, classes and opinions which have arisen everywhere under the free constitutions?

Will not the states of the present day, perhaps, in the times to come share the fate of the civilized states of antiquity, the states of the Greek and Roman world, in which the free government of the people and dictatorship alternately succeeded each other for long periods? Will it happen, then, in our own age, after the period of absolute monarchy in the sixteenth and seventeenth, and partly in the eighteenth, and after the period of "free democratic" government in the nineteenth century that now, in the twentieth, we are to enter upon a period of absolute rule for a hundred years or more?

2. Divided and uncertain as mankind is on the fundamental problem of *politics*, it is equally so on the *social* problem.

Is the right of private property and private enterprise to be the basis supporting the industrial life of society, or must the State take over the whole direction of industrial life (including the trades and professions)? In the countries of western Europe and in America the social order rests in the main upon the private right of property and private initiative. But even in these countries the hardest struggles take place between

those sections of society which give their allegiance to the fundamental view of socialism and those who adhere to the right of private property. And in eastern Europe, in Russia and the countries under its influence, the tendency towards socialism has conquered, to a greater or lesser extent.

3. Meanwhile, beneath these great political and social questions, there lies a still greater, still deeper question for humanity, namely the problem of the *moral* and *juridical* evaluations. These evaluations are a strange phenomenon, appearing as a power in all human action and conduct; they sit in judgment on every act of human beings, on their personal life as well as on the institutions they have created, including the greatest of all human institutions, society and its law system. All new movements in society, the peaceful as well as the violent, arise from these evaluations. Revolutions against an existing state of society are due to a basic evaluation that the existing society is bad. And when there is a conflict and choice between the fundamentally different political and social systems mentioned above, it is due on every side, on the part of their adherents and opponents, to definite evaluations as to which legal system is the best for society in the long run.

Meanwhile it is not strange that it has not been possible to come to an agreement about the great political and social questions, but that the whole world is divided and at variance about them. For in recent times there is a profound disagreement and vagueness about the deepest questions in human life, about those on which all other questions depend, about moral and juridical evaluations. The times are moving on the surface when it is thought possible to solve the greatest political and social questions without trying first, after finding a basis for examining it, to solve the problem of the evaluations of morality and right lying behind all political and social systems, behind all personal and social rules of conduct. With a slight alteration of an old and wise saying one might thus express it: Seek first the answer to this, the deepest question of human life, then the answer to all the questions in the world shall be given you.

Ethics is the scientific examination of the moral phenomena, jurisprudence the scientific examination of the juridical phenomena. It is important, of course, that ethics should (1) give a description of morality, of the moral rules by which life is actually lived, just as jurisprudence gives a description of the law that is actually in force. But ethics and jurisprudence cannot be limited to this descriptive purpose. Great differences present themselves, both between the different nations

and between the different ages in the development of the human race in regard to the morality actually followed and in the positive jurisprudence in force in the countries (statutes and judicial practice). Through a historical and comparative examination of the morality and legal rules followed, however, in different ages and by different nations, one necessarily arrives at the question: In spite of all the great number of differences between the morality and law of the different ages and nations, cannot certain common, fundamental moral and juridical principles be pointed out, showing how the human race in the course of history has fought its way onward from lower to ever higher stages of development, which the primitive tribes at the present day are still far from having reached, and which even the civilized nations, the society of the present day, only follow imperfectly? This leads to the second and most important task of ethics and jurisprudence: after the actual description to examine (2) whether it be possible to establish morality and justice on a scientific basis.

The solution or non-solution of this fundamental question of the very basis foundation of the moral and juridical values will be decisive for the future course of mankind; and on this vital issue our times display everywhere the signs of decay and contradiction. During the development of science in recent times tendencies gradually arose which showed a strong critical attitude to the old spiritual values, morals and religion, both in their forms hitherto known and in their innermost core. The free scientific spirit, which began to make its appearance with the Renaissance, decisively broke through all bounds in the eighteenth and nineteenth centuries, and regardless of all considerations of respect subjected all phenomena, all values, including morals and religion, to a critical examination independent of the conceptions of the past. Then at the end of the nineteenth and the beginning of the twentieth century a tendency arose, both in philosophy and in aesthetic literature, to deny the possibility of giving any reason whatever for morals whether

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The word ethics is derived from the Greek substantive: ethos, which can mean both "custom" and "character". We use ethics both in a wider and narrower sense. Ethics in a wider sense comprises both the theory of morals (also called moral philosophy) and jurisprudence (philosophy of right). We therefore call both morals and right ethical values. In a narrower sense ethics, on the other hand, only means a theory of morals. Usually ethics is taken only in the latter, narrower sense. But as there is also a need of a common word there is no reason why, along with this, both right and morals should not be called ethical values.

inherited ones or otherwise. Freedom for the full unfolding of life in all its spheres, unhampered by the rules of morals and the ideas of religion became the watchword of the times. And at the present day the idea has become more and more widespread that the inherited religious conception with its belief in absolute moral ideas is a past stage in the development of the human race. But at this very time, when the philosophic and aesthetic negativism or relativism in the sphere of morals and religion is gaining ever more ground, new strong contrary movements are setting in suddenly and violently. Mankind seems again to be longing for absolute, everlasting ideals. The battle then, is being fought between these two fundamentally different conceptions of life, and the fight is becoming more and more a problem of civilisation, a question of the existence of our civilisation and its future.

If one would judge fairly in this life and death struggle between two fundamentally different views of life, the antagonism of which is felt everywhere in the life of men and communities of the present day, there is, so far as I can see, no other way open than the *strictly scientific.* True, it must be admitted that a really scientific research, in that very sphere of spiritual life, in which the moral and juridical phenomena and the opposing forces are to be found, is fraught with great difficulties, greater than those encountered by the scientific researches in external nature. The difficulties, however, cannot exempt us from at any rate attempting a strictly scientific investigation into these depths of the life of the soul. We must first go down the deep shafts of human life, where doubt and faith contend for those values or moral forces which have hitherto been regarded by the peoples as the supports of mankind, before we have the right to set to work in the community for or against these forces.

The most important condition for a really scientific investigation is that one enters upon it without any kind of preconceived opinions. From the point of view of science, morality or immorality is at the outset equally good or equally bad, or rather: they stand equal at the beginning of the scientific examination. They are both at the stage of accusation and defence, where they stand before the impartial judge. Morals or non-morals are both internal psychical phenomena which must first be examined and treated quite objectively by science, just as objectively as iron and coal, with the same emotional indifference as that with which science examines the atoms of the elements.

Here there are three possibilities. The scientific investigation of the ethical phenomena, morality and justice, will either arrive at the result that

not only can morality and justice not be founded on reason, but that they can be scientifically *disproved.* Or the examination will arrive at the result that these ethical values can *not,* it must be admitted, be founded *scientifically on reason,* but, on the other hand, neither can their justification be disproved. Finally there is a third possibility, that the ethical values *can* be founded *scientifically on reason.*

On this vital question justice shares the fate of morals. For the rules of justice are only that part of the rules of morals which society is able to enforce with external power, with the vindication of the law and its technique.

CHAPTER 2

EARLIER ATTEMPTS TO PLACE MORALITY AND JUSTICE ON A SCIENTIFIC BASIS

It is natural to begin the investigation by asking the experience and insight of the past: What attempts have been made in the past to give a reason for ethical values?

When the intellectual activity which we call science began to make its appearance in the development of the human race, it did not begin by examining the inner, psychic phenomena. On the contrary, these phenomena, because of their intangible character, eluded the notice of these stages of science. At first science was occupied entirely with external facts, with the natural phenomena of the *external world*, such as the earth, the sea, the celestial bodies, the sun, the stars and so forth. A higher stage in the development of scientific activity is required to discover and examine invisible, psychological forces and the interrelation of their causes and effects.

Wherever that which we call a scientific explanation first makes its appearance in human spiritual development, it is expressed in an unconscious groping, later on in a more conscious and deliberate seeking, for some *other cause* or *causes* than those which the human race in its infancy assumed to be the only true causes of all things and their changes, namely supernatural beings.

The supernatural explanation is the first explanation of *causes* put forward by the human race, and it is due to an analogical inference which man draws *between himself and his powers and external nature* and its activities. When primitive man sees that all the activities and changes within his nearest horizon, with which he is himself acquainted, are due to his own force and interference or those of other living creatures, it is natural for him to think, when he sees activities or changes in nature, that these too are due to the forces and interferences of living beings. And as these natural changes are often far greater and more

violent than any which he and his fellow men are able to put into execution, the powers behind these forces are imagined to be mighty, supernatural beings, able through their activity to interfere—both beneficially and harmfully—with his destiny and that of his fellow creatures, on whom men are therefore dependent and whom they must fear and try to please. The sky has its god, the sea has its god too, the rivers have theirs and so on, and although the names vary from people to people (Zeus, Jupiter, Odin, Poseidon, Ægir, etc.), the fundamental idea of the gods is the same. The analogy is pushed further and further, so that at last the gods are imagined in human form, only of supernatural size and with supernatural powers, and just as one tries to move human beings to a favourable conduct by offering them gifts, so one seeks to win the favour of the gods by gifts and sacrifices. Meanwhile it is not only the *external world,* nature and its activities, of which the gods are thought to be the authors. The same explanation of causes is to be found in the human race in all these earlier stages in regard to such phenomena as *morality* and *justice.* The rules of morality and justice—which coincided at those stages of development—were the commandments of the gods.

As we know, it was among the Greeks that what is called the scientific examination of natural phenomena first appeared and began to supersede the primitive explanation of these phenomena as being due to the interference of the gods. The Egyptians and Babylonians probably because of natural phenomena and their consequences—the fertilisation of the land by the periodical inundation of the rivers, drought, the cultivation and division of the land—had no doubt been forced into mathematical and astronomical thought, but only as a practical art of surveying land, and practical calculation of time by the observation of the celestial bodies. But they did not reach conscious thinking or philosophic study of the world and its origin; in this they were satisfied with the belief in the interference of the gods. The Greek, Thales, of Miletus (circa 600 B.C.), who was well acquainted from his travels with Egyptian and Babylonian mathematics and astronomy, was the first to ask of what the inner essence of the world consisted, of what matter it was made. As a sea-faring Greek, with a strong impression of the great ocean, it was fairly natural that he should come to the conclusion that the original matter from which the whole world had arisen was water; the lands had risen like islands from the ocean; and his assumption seems to be confirmed by the fact that plants cannot come into being without moisture, and that altogether every living thing, plants, animals, cannot

live without the element of water. With this a philosophical or scientific method of thinking had been started which has lasted up to our own times, passing through numerous changing assumptions, hypotheses, about the same problem of original matter. It is not to be wondered at, of course, that Thales' successors in natural philosophy soon found other solutions, other substances as the original matter than he did. Thus another found that air, not water, was the original matter; a third thought it was a kind of fire substance. In fact, Greek thought, in the sphere of external nature, develops during these and in later times in two parallel directions. On the one hand the Greeks develop the practical knowledge and ability which they, as mentioned above, inherited from the Egyptians and Babylonians, into a series of special sciences: mathematics, astronomy, and physics (Pythagoras, Euclid, Archimedes *et al.*). But simultaneously an abstract, natural philosophy, took up the problem of the inmost essence of the world. Side by side with the dispute about the nature of original matter, a conflict arose as to whether the inmost essence of the world was immutable or subject to constant change. One school of thought maintained that the world, everything in existence, is a unity and eternally immutable, and that all the multiplicity and changes of the external world are only an appearance (the Eleatic school). Conversely, another school maintained that everything is in a state of ceaseless change, motion, in a state of constant becoming, and that all stationary, static existence is only apparent (Heraclitus). Finally a school arose which tried to mediate between these ideas, maintaining that the original substance consisted of a multitude of minute elements, that these were everlasting, unchangeable and indivisible—atoms—but that it was the blending and combination of these atoms with each other which was the cause of all change and of all the manifold different objects observed by our senses. The atom was an ultimate element which blended and combined with others, but which was not itself a compound (Democritus).

All these disputes about the inmost essence of the world, of the nature of the original substance, whether the world was everlastingly immutable or in constant motion, would in the last instance seem to be futile, as none of the conflicting ideas could give any proof of being right; they were all only assumptions, suppositions, in the last resort subjective opinions. A doubt, then, gradually spread as to whether it would be possible at all to find out what was the essence of the world, the inmost reality of nature. A sceptical spirit arose which resolved everything into subjectivism: that which is true for me is not true for you; there is no objective truth

at all, valid for everyone. That is true which at every given moment seems to me to be true. Several philosophers holding these opinions also doubted the correctness of sense observations; they denied the existence of an external world. Man thus became the goal of all things. This conception would of necessity have consequences, also in a quite human sense. At any rate the egoism of the individual became the only guide to normal conduct for several of these philisophers—the sophists. If one would judge the more important of the sophists quite fairly, one must admit that from the point of view of knowledge their negativism was justified when viewed in relation to the natural philosophic speculations that preceded them.

It was against this background of dissension between fundamentally different conceptions of the world, of general doubt about every knowledge of truth, and of disintegration, that *Socrates* arose. He agreed with the sophists in so far as he acknowledged that he knew nothing about the inmost essence of Nature, about the *external world* as a whole. The disputes about it did not interest him. Meanwhile there was a knowledge which he considered to be the greatest and most important, in fact the one thing needful for man: that of *knowing himself*. He declared that he did not understand anything about the knowledge of Nature, either in its entirely or in its details. In short he says about other knowledge, in comparison with self-knowledge: "I am not yet able to do what the inscription in Delphi demands: to know myself, and it seems absurd to me, so long as one is ignorant of this, to occupy oneself with other things."

Socrates thought that in self-knowledge he could find a sure knowledge, namely of what is most important in the life of man: the way to happiness. Thus, in contrast with the knowledge of Nature, selfknowledge might lead both to a sure apprehension, which the knowledge of Nature could not give, and besides, to an apprehension of something that was of far greater value to man than the subjects with which the knowledge of Nature was occupied, namely, to the one thing needful, the happiness of man (eudaimonia).

All men strive after happiness. Therefore all must know how to find the road leading to this goal. According to Socrates all true ability and virtue, all *morality*, consists in having discovered this, in *knowing the way to happiness*. Socrate's thought is based on the idea that ability and virtue consists in knowing, in understanding, that all wrong, unethical action is due to a lack of knowledge of how the goal of the human will, happiness, is to be reached, and that therefore no one errs of his own free will, that no one intentionally does that which is evil.

If Socrates is right in this basic thought, that all virtue and ability depend on *knowing*, this is the strongest scientific validation of morality. For no reason can be stronger than showing that *morality itself* is a science.

But how did Socrates arrive at this result, that morality is *an understanding?*

In his time the Greek civic community had reached a high standard in their handicrafts, in technical ability to use materials for practical purposes, first and foremost in the erection of buildings with all their variety of arrangements, in the planning of streets and marketplaces or squares, in building walls round the city, constructing aqueducts, building ships and vehicles, etc. In this the Greeks profited by the experiences gained by the Egyptians, Babylonians and other nations. Starting from them and combining them they made great progress. All this technical work required great specialised skill, great ability in calculating the relation between ends and means. The same was true of the other kinds of industries or arts that arose in a highly developed civic community like the Greek, including the so-called free professions, from the arts of sculpture and painting to that of medicine. Everywhere, in an ever increasing degree, there was a demand for greater technical skill. The Greek word *arete*, which was commonly used later of moral virtue, in the Homeric poems meant valour, force and quickness, that is, the ability necessary in the calling of war, but later it came to mean special skill in practical trades or professions, and only still later did it acquire the sense of the general quality of virtue. Socrates, whose nature was so deep and thoughtful, could not but wonder and be forcibly impressed on seeing that in all handicrafts and arts the advanced technical skill of which had produced such fine results in the Greek towns, there was a striving after greater and greater skill and insight in the relation between ends and means, while concerning the happiness or welfare of human beings, of the highest importance to humanity, there was no corresponding aspiration after insight or ability. In all other spheres it was clear that nothing could be attained without special insight or skill, but in this sphere, the most important of all, everything was haphazard. What Socrates wanted to teach his fellow men was therefore a special insight or knowledge of the ways that lead to human happiness and welfare. In *Plato*'s dialogue, Meno, *Socrates* says: "Everything that the soul engages

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The Latin word *virtus* also originally meant manliness, bravery and later, virtue.

in and constantly performs, leads ultimately to happiness when guided by insight, but to the opposite when folly rules. So that if virtue is a quality of the soul which necessarily must be beneficial, it must be insight, since everything in the soul is neither beneficial nor hurtful in itself, but becomes hurtful or beneficial when united with folly or insight. From that point of view virtue must be an insight, since it is beneficial."

In the same place Socrates emphasises, that the good things of life, health, srength, beauty, wealth and the like, are only beneficial or useful to us when we use them in the right way, but knowledge alone can teach us this right use, that understanding or insight which is virtue. Thus he points out in another of Plato's dialogues. Protagoras, that the right knowledge often consists in the right art of measuring, or moderation, when by choosing a lesser pain at the moment one gains a greater happiness in the future, while conversely those who give way to the desires of the moment choose a lesser good without knowing or thinking of the grave consequences of their action in the future

The life of the individual is the starting-point and first object of the Socratic validation of morality, but exactly the same reasoning or evaluation is applied when we pass on to the conditions or organisation of society. Just as Socrates examines whether an individual quality, a so-called good, a mode of action of the individual is beneficial or useful to him, so also he examines whether the diverse organisations of the State are useful to men, and on this point he often severely criticised various institutions under the democratic rule of the city of Athens, since he found that the special knowledge and insight, which was considered necessary in all special trades and activities was not demanded in this sphere. General human welfare, and what was suitable and fitted for its welfare, became the standard by which the quality of every social action or institution was judged. From this point of view Socrates acknowledged no state institution or authority. He did not bow down to any state institution because it could claim authority won by tradition. He acknowledged a state institution only when proof could be given of its usefulnes or beneficial effect and its fitness for the promotion of human happiness. This, however, makes one understand why Socrates gradually came to be looked upon as the great rebel who undermined confidence in inherited state institutions, including the democratic ones, and who, by subjecting them to the test and criticism mentioned, corrupted youth and was a danger to the State.

Meanwhile more recent thinkers also criticised Socrates' basic con-

cepton, that virtue is knowledge, that one acts wrongly, as regards morals, only through ignorance, that no one deliberately does what is evil. Now it must certainly be admitted that one may possess an exact knowledge, a clear perception of a virtue, e. g., self-control, without possessing this quality oneself. On the other hand, it would seem that there is a certain core of truth in Socrates' view. Thus, on questions of honesty in practical life, a close connection, will often be seen between vague thinking and muddled morals, and in the matter of curbing a passion he who gives way to it will at the moment of action or before it very often have marshalled a number of arguments for himself, which seem to him to outweigh the arguments against giving way.—After Socrates there did indeed come another who with his deep insight into life said of those who killed him: They know not what they do.

It is right, indeed, that in general Socrates' chief assertion, that men only act immorally through ignorance, can hardly be maintained. It is more important, however, that some of the most essential moral qualities do not in the first instance depend on intelligence but on feeling. As I shall try to show later, the purely intellectual ability to foresee or precalculate the injurious effects of one's actions on one's fellow men is intimately associated, psychologically, with the strenght of one's feelings for those whom the action may eventually injure, nay, it is actually proportionate to it.

If Socrates' attempt to base morality on knowledge has not succeeded it is due, however, to a deeper-lying cause, but this has not hitherto been seen in ethics. So far as I can see, the great difficulty in Socrates' conception lies in his taking the word *"knowing"* in a particular sense and in not, before *defining* morals or knowledge, examining whether it might possibly be taken in *different senses*. In his talks Socrates usually insisted on his listeners knowing what the discussion was about, on their being quite clear about the meaning of the words used, and reaching clear definitions of the idea underlying the words. Thus it would have been in the spirit of Socrates himself if one of his hearers had asked him the following question: Now, please tell me, Socrates, when you say that virtue is *knowing*, what do you really *mean by the latter word*? Do you take the word *knowing* here in the same sense in which we take it, *e. g.*, in mathematics, in physics, in natural science altogether, or do you take it in another sense? If anyone had put the question to Socrates he would perhaps have been compelled, owing to the thoroughness of his nature, first to give some attention to the knowledge

of Nature, which did not otherwise interest him; he would then have seen that one cannot separate any part of human knowledge from another as less important, that in *all human knowledge* or *science there is a strict coherence*, and that only a survey of and an investigation into the fundamental ideas common to all science can elucidate the deepest problems of human life. First and foremost in all sciences is of course the idea of *Knowledge* itself; the question: what is really meant by the expression: to know something. "For"—such a listener, adopting Socrates' own method, might reasonably say—"you cannot expect, Socrates, to be able to convince us that virtue is knowing, until you have told us first what "knowing" is." And it is possible that Socrates' ponderings on this question and his answer would have led thinking into quite new paths, so that we should not have had the vagueness that pervades all the later schools of thought indeed all later ethics, both the ethics of the Epicureans and Stoics of antiquity and the ethics of utilitarianism and of duty of modern times. There was no listener, however, to put this question to Socrates. And we can add: there has not been anyone since who has asked this question. This, the most important of all questions, was forgotten.

All later Greek ethics agreed with Socrates on certain main points, even though they often disagreed among themselves and split up into schools or different intellectual systems. The main point is the starting-point itself of the ethical considerations of Socrates, namely, that human happiness is the aim of every theory of morals. In this all his successors agreed, but disagreement begins when they have to state more definitely in what happiness consists. On the question as to the ways leading to true happiness Greek ethics separated in different directions. Even here, however, there was one point on which all were agreed. and on which they all followed Socrates. It was in the old Greek idea that there must be a certain limit or boundary to desire or pleasure too, and that the boundless or unlimited is harmful.

Plato, particularly in the later dialogues, sets himself the task of a closer investigation into the highest good, the feeling of enjoyment or happiness and in what it consists. From the experience of his life he arrives as the result that what we call pleasure or the feeling of enjoyment consists of different things, that a line must be drawn between bad and good pleasures. Feelings of pleasure at the sight of beautiful colours or figures, at beautiful sounds or odours, at the activity of thought, are

feelings of enjoyment in which no pain is concealed. But immoderate or unlimited pleasures must be avoided. The soul must unite various forces harmoniously in itself, without excess in any direction; the highest virtue therefore, is the virtue of the moderate mind which exercises control over single, exaggerated desires.

These considerations do indeed underlie Plato's treatment of the problem of *society*. In his chief work on the government of "the State" (politeia) he emphasises that the individual desires in the State must be kept under strict control, no one must be allowed to do as he likes or occupy himself in whatever way he chooses. The activity of the community is founded on a division of labour in which each one has his definite work to perform, different needs being thereby satisfied in a harmonious way. Consequently the State had not, as the sophists maintained, arisen through an arbitrary agreement between individuals, but was deeply rooted in human needs, as no one can exist alone, but needs many things which the fellowship of the community and the division of labour can procure for him. But it follows from the division of labour that each one must do the work for which his nature and abilities best fit him. The virtue that is of particular importance for society is *justice*, but the fundamental idea of justice, according to Plato, consists exactly in *each one attending to his own task and not engaging in irrelevant affairs*, therefore: let each one do that work in the community for which he is specially suited. A strong *specialised and classified system* in the order of the State will be the result. In this Plato strongly opposes the individualism and democracy of his time and advocates an authorative rule with a strict control of intellectual life (both in poetry and art) on the part of the State, so that the people shall not be corrupted by bad spiritual influences; and an economic planning of the trades and industries. Under democracy each man does as he pleases in unchecked freedom of action and speech, and this leads to the disappearance of every authority in the family as well as in the State. And each thinks he understands how the State ought to rule. But this rule is really an art, understood only by the wisest and most capable. Like every other special occupation the business of statesmanship requires a specific knowledge of affairs and careful preparation. Plato demands the most comprehensive scientific training of the rulers of the state and the most thorough practical experience. He says: "Either the philosophers must become kings of the states, or they who are now called kings and rulers must begin to study philosophy in a genuine and satisfactory manner. If this union of political power and philosophy is not brought about, and

all the large number of minds that are at present turned in one direction alone are compelled to give this up, there is no possibility, my dear Glaucon, of putting an end to the evil in the States, nor, I believe, in the human race. And until that happens that order of the State which we have here described in words will never get within the region of possibilities and see the light of day." The training of the rulers therefore becomes of the greatest importance for the foundation of a sound life in the State. But with his wordly experience Plato was not by any means of the opinion that the philosophers or scientific thinkers would be able to rule by virtue of their scientific training alone. After this training they would have to learn the meaning of life and its needs through many years of practical work.

In his ethical investigations *Aristotle* continues the reasoning of Socrates and Plato. Every human activity is aimed at obtaining a good. But which is the highest good? Everyone will answer: happiness or bliss. But in what does happiness consist? According to Aristotle it consists in developing the abilities peculiar to one's nature, the bringing to perfection of one's gifts. As, however, the peculiar gift or capacity in man (as distinguished from animals) is reason or intellectual activity, happiness consists in the rational activity of the soul. These basic thoughts are further developed by Aristotle in his chief ethical work: Ethica Nicomachea. At the beginning of this he points out that there are very different opinions among men about happiness and in what is really consists. Some think it consists in material pleasures, to other it means honour, other again think it is to be found in riches, and so on. Aristotle, however, thinks it can be found in a generally recognised form of happiness which is above the so-called kinds of good mentioned. He concludes thus: Everyone who has some definite, special work, *e. g.*, an artisan, a sculptor, has an activity, a function which is peculiar to him and which in itself is an excellent good. And so for *man as such* there must be some work or function which is peculiar to him and may be called his. In what, then, can this peculiar work or function consist? It cannot be that of living itself, of the nourishing and growth of the body, for we have that in common with all living things, the plants included. Neither can it be the life of the senses, for we share that with all the animals. There remains, then, *as peculiar to man* as such: a life suited to action directed by reason, or, as he also expresses it: the work of man is a spiritual function guided by reason. The peculiar human ability is not that of the body but that of the soul. Human good or happiness therefore consists in a spiritual activity, in

virtue and efficiency. We call happiness a spiritual activity. Aristotle expresses these thoughts many times and in varying forms. Thus in another place he says: „That which is by nature peculiar to each one is the best and most delightful for him. Therefore the life of reason is so for man, as reason really *is* man. This life will then be the happiest."

The ethics of Aristotle are closely connected with his theory of knowledge. In the problem of the old Greek natural philosophy: change or immutability, he finds the solution in distinguishing between what may be called the matter and form of things and beings. Matter in the world is the inactive, passive, form the active, creative element, which from an inherent tendency in things and being seeks to achieve the object of realizing the perfection peculiar to each. Here, in fact, he established an *analogy between the activity of man* (*e. g.*, the shaping of stone, wood or other material by the artisan into a perfect but higher state corresponding to it, a house, an implement, a ship) *and Nature* as a whole, both the organic and the inorganic world. Hence a union arises between the theory of knowledge and the ethics of Aristotle. And man's striving after happiness, after the good peculiar to him as man, is a striving to reach the perfect form of his being, and the universe then really seems to him to be an ethical world, everywhere impelled by an aspiration to ascend from a lower to a higher stage of development.

Aristotle points out that besides reason, there are natural forces or urges in man's nature which contend against reason. He who can control these impulses, who has perfect control of himself, obeys the dictates of reason in his soul. Like Plato he arrives at the idea of the right aim or moderation and so develops his theory that the virtues in all conditions of life are *the right mean* between two opposite states, which must be regarded as exaggerations. He who enjoys every pleasure and cannot restrain himself from any becomes dissolute, but he who flees from every joy becomes dull. Most things in life are spoiled by too much or too little. Plato, like Aristotle, distinguishes between *two different kinds of feelings of pleasure*, of which he considers one kind more valuable and purer than the other, and like his teacher he regards the feeling of pleasure or joy in colours, sounds, in all art, and the activity of the mind as the best. As a particular contrast he points out that while joy in colours, in musical sounds and the like come from the eye and ear, the sense of smell and of ordinary touch affecting the whole body, the pleasures that we have in common with the animals—and with which self-discipline is concerned,—the pleasures of food and drink, and the sexual impulse—are physical and limited locally. Not every pleasure

is desirable; the former joys or pleasures are, according to Aristotle, above the latter in their kind and source. On the question of *the government of the community* Aristotle, like Socrates and Plato, is severe in his criticism of the enormities and excesses of the democracy prevailling in his time. He points out that under this form of government it is often a matter of chance who the leaders are. He maintains that the government of a state, like any other business or profession, demands a special knowledge of affairs, and that only they ought to be rulers who have the greatest specific knowledge and practical experience of social questions. The highest form of the state is that in which there is a single ruler when he is eminently efficient. This seldom happens, however, in real life; greath strength or ability are rarely combined with the greatest insight and wisdom, and monarchy therefore easely lapses into tyranny, the worst of all forms of government. Failing the best, government by a single eminent ruler, aristocracy or government by a few, particularly competent men with great insight is the best of government.

Later Greek philosophy was not on a level with the three great thinkers above-named. Moreover, on the problem about happiness, in what it consists, the later Greek ethics were split up in different systems, among which there is particular reason to mention two because they express two different views of life, the Epicurean and the Stoic schools.

Epicurus defines philosophy as an activity which brings about a happy life by means of meditation and discussion. It is a popular fallacy that Epicurus and his school looked for happiness in material pleasures only. The starting-point of Epicurus, that pleasure or the feeling of happiness is the only true good, he considers to be an immediate, obvious fact, not needing any special proof. Striving after pleasure is of the very essence of man, the object of all his actions. All virtues are only means to attain this good, the highest possible feeling of joy. Epicurus considers the physical joys valuable, but he regards those of the soul as greater. He lays particular stress on securing felicity far ahead, for the whole duration of life. Reflection, foresight and consideration of what is of advantage or disadvantage in the long run, and selfcontrol are therefore, according to Epicurus, necessary elements in the right art of living. It is important to avoid all anxiety and disturbance and all pain, unless the feeling of pain is essential to obtaining still greater joy or happiness.

A private life in undisturbed peace and happiness, in calm enjoyment of the blessings most suited to one, is what Epicurus considers to be

the highest; and a man is wise in keeping away from all public affairs. Hence he is not much interested in the State or the government of the State. In his opinion the State is merely an institution for mutual insurance and protection, which has to ensure by its penal laws that people individually can lead their lives calmly and mutually undisturbed by each other, as those who would injure or in other ways interfere with and disturb the peaceful and happy lives of the others being deterred from it by the law.

If one were to characterise in simple terms the antithesis between the ethics of the Epicurean and Stoic schools, one would probably have to emphasise that the thinking of the Stoic school starts from an essentially more gloomy outlook on life than that of the Epicurean, that the Stoics have a far keener eye than the other intellectual system for the possibilities of pain and suffering in human life, and that it is therefore important that man should be trained to rise above them. This is not possible, however, unless human beings are at the same time freed from their dependence on those pleasures and forms of happiness which most men regard as the greatest, but which often come to a sudden end in the storms and incalculable vicissitudes of life upon earth. The Stoics experience of suffering in human life goes deep. They agreed with the Socratic idea that ethics is wisdom, insight into life, and their object, like that of the Epicureans, was human happiness, but their insight into life showed them that illusions and errors lead men blindly into the storms of passion and into guilt, and that all life in excitement and desire means suffering. The Stoics saw, firstly, that human passions contain incalculable possibilities of suffering and pain and that only a deliverance from or a subjugation of these destructive forces in human life can save men from the suffering which threatens it from that quarter. But next, the Stoics were keenly aware that those blessings of which man usually speaks as sources of pleasure and enjoyment: riches, health, family, power and the like, are often, as experience shows, subject to mere chance and exposed to catastrophes from outside over which man has no control. The ideal picture of the sage is therefore, in the opinion of the Stoics, a man who has not only freed himself from his passions, but who has also made himself independent of the good things of the external world. He escapes suffering and gains inner peace and happiness.

This insight into life leads the Stoics into a strong tendency to asceticism, to a withdrawal from this world and its external allurements, a tendency like that which we encounter in other contemporary and

in later spiritual systems and religions, for instance in Indian philosophy and religion, particularly in Buddhism and in early and mediaeval Christianity. In all of them we meet with a common feature, a withdrawal from or rising up above this world and its good things, a renunciation of the desires and impulses of life, a recognition that to bind oneself to these goods and these inclinations will sooner or later lead to disaster. This withdrawal from life may lead to a denial of life, as in Buddhism, which has felt the suffering in all human life, in all its goods, desires and catastrophes so intensely that it sees its highest aim in the complete annihilation of human life in the ordinary sense. The Stoics, on the other hand, had not given up belief in a certain happiness, they believed in a world reason ruling over all nature, to which individual man must subject his own reason, a higher order of the world, God. Nor had they given up the hope of reaching a certain improvement of human society. A fairly large number of Stoics took part in practical life, especially as statesmen and lawgivers, and often they obtained a beneficial influence on the direction of legislation, but they realised what kind of fate they might expect on the stage of this external world. The endeavoured, therefore, to become spiritually independent of the external course and events of the world, and to seek the highest satisfaction within themselves. Even if those who had worldly power exiled them to desert regions, far from their families, from power and wealth, they would still assert that they carried all they owned with them (omnia mea mecum porto). They believed that through the control of the mind and submission to the world order they could rise above all misfortunes and vicissitudes, wealth and poverty, health and sickness, honour and disgrace, life and death.

As I have tried to show above, Greek ethics, both in the three great thinkers, Socrates, Plato and Aristotle, and in the subsequent Epicurean and Stoic systems, threw a light on certain aspects of the ethical problem, and their thinking bears witness to deep insight into the circumstances of human life. But they were not able to give any scientific reason for ethical values, for morality and justice. For if such a proof were to be given, they would have had, as I have tried to etablish in presenting the doctrine of Socrates, to investigate the idea of *knowing* itself, since most of them asserted that morality and justice were a knowing or reason. One can therefore understand that ethics split up in different schools, each of which insisted on widely different ethical ideals or values, for none had been able to indicate any objective standard

for the different values, and hence a fixed guiding line for the life of man, for his conduct and development of morality and justics. It is therefore very natural that after the great ethical thinkers, contemporaneously with the later, opposite ethical systems, there arose a new trend of thought—*scepticism*,—which, being weary of the strife between the various conceptions, took up an attitude of doubt of all moral values. The sceptic maintained both that an objective knowledge af external things was impossible, as all observation or sense perception depended on subjective, constantly varying impressions, and that it was impossible to give a reason for ethical values, as here too, the subject was the only standard, and its individual feelings the source of all values. The sceptics thus dissolved all conceptions of value, maintaining the nothingness or indifference of every universally valid standard, both in the knowledge of nature and in ethical evaluation. If they were asked how, then, one's life should be lived, they referred—when they were conscious at all of the consequences—to rules and customs actually in existence, to juridical practice and law in the province or country concerned. But for such a mode of action they could not, of course,—from their own standpoint—give any reason whatever, any more than for any other mode of action or evaluation.

During the latter period, in which the thought of antiquity fell apart in different philosophical systems, with conflicting ethical ideals or scepticism about all ethical values, another spiritual power arose: religion, with the most positive assertion of the highest ethical ideals. This new religion, Christianity, gradually took possession of most minds and became a power in the community. It did not, of course, furnish any scientific proof of ethical values; instead, it bestowed an unshakable *faith* in these values, and that, moreover, in the form of the most absolute selflessness and self-sacrifice. The Church being the only spiritual power in the Middle Ages, all thought, as well as all art and poetry came under the realm of the Faith and was taken into its service. Free scientific investigation, which had ended in intellectual disintegration and doubt when faced with this new, conquering spiritual power, fell silent for the next thousand years.

Such great periods of spiritual unity, so self-contained and with such unshakable faith, as were those of the Middle Ages, are instinct with sublimity and power of attraction over the minds of men. *Goethe* justly says: „All epochs, in which the faith is dominant, in whatever form it appears, are brilliant, uplifting the heart and bearing fruit for the contemporary age and that which comes after it. All epochs, on the other

hand, in which the doubt in whatever form vaunts a mean victory, will—even if they can for a moment boast of an illusory brilliance—disappear from posterity, because no one will care to torment himself with recognition of the unfruitful."

It is a different matter that new, fruitful spiritual powers arise beside the older ones. Thus experience shows that along with the spiritual power of religion another spiritual power becomes more and more evident in the development of the human race, that is, science, and even though it may for some periods be pushed aside it will come up sooner or later with its question: Why? Man will never stop seeking and demanding *a reason.* This holds good both as regards our picture of the world and as regards the guiding principle of our personal life. Here the period of silence lasted, for science, a thousand years. But at last science made its appearance again. *The rebirth of science is an important link* in all the period that we call the *Renaissance.* During this period it happened that not only Greek and Roman literature, both the scientific and the poetic, and antique art were born to new life and became generally known and studied in Europe, but while the intellectual life of Europe was in this way again linked up with its ancient culture, a new picture of the world, a new natural science and a new technique were also built up on this foundation, and on new experience in connection with it. In the Christian Middle Ages there was, of course, a certain methodical thinking, but it was chiefly concerned with uniting the dogmas of the Christian faith with those of Aristotle. Within this narrow horizon there was a great deal of comprehensive and keen thinking, *i. e.,* the scholastic, its greatest representative being *St Thomas Aquinas,* But in the fifteenth century and the beginning of the sixteenth several thinkers, such as *Cusanus* and *Pomponazzi,* began to dissociate themselves from scholastic thought, which at that time was chiefly engaged in commentaries and interpretations of the Bible and the works of Aristotle, while these new thinkers turned to Nature, at the same time as they came into contact with other philosophers of antiquity.

The transition from the Christian Middle Ages to the rebirth of science during the Renaissance occurred quite gradually. The first incentives to a new development in the intellectual life of Europe came partly from the Arabs, partly from the Greeks in the steadily decaying Byzantine empire. When the Arabian empire was organised in the seventh and eighth centuries and at the height of its power extended from Persia to Spain, the lively intercourse between the different parts of

this vast empire led not only to a world trade and to a considerable material culture which had great influence on mediaeval Europe, but gradually to an intellectual Arabian civilisation, and with it to a science which was to be of great importance to Europe. Through the contact of the Arabian world empire with Greece under the empire of Byzantium the Arabs became acquainted, as early as the ninth century, with the scientific literature of ancient Greece, in particular its mathematics, astronomy and physics, and on this basis they made these sciences advance still further. A strong scientific influence issued from the Arabian universities situated nearest the new nations of Western Europe, especially the university of Cordoba in Spain, and had its effect on Christian Europe already in the tenth and eleventh centuries, notably in the sphere of natural science, mathematics and medicine. Technically too, owing to the trade coming from their far-flung empire, the Arabs became mediators and promoters of progress, *inter alia*, both in architecture and navigation. Thus, in their trade with Eastern Asia they are said to have become accquainted with the compass in China, and to have used it in their ships already in the ninth century, and when it came into use in European navigation in the twelfth century navigators were soon encouraged to venture out on the great oceans with ever increasing boldness, and the Arabs' practical application of astronomy had the same effect. A direct connection of causes led from this to the great navigation of the western ocean which culminated in the discovery of America in 1492. This broadened the horizon of Europe while at the same time the trade with the newly discovered continents gradually brought Europe an increasingly great material prosperity. This expansion of the horizon is another of the important features in the age called the Renaissance; it encouraged still greater research and a still greater survey of Nature. In the sixteenth and seventeenth centuries the nations of Western Europe were already able to go further into natural science than their teachers, the Greeks and Arabs, for during this time the new picture of the world was created by *Copernicus, Kepler, Galileo* and *Newton*, and the Ptolemaic idea of the earth as the centre of the universe, accepted also in the Christian Middle Ages, now had to yield to the new conception of the universe, in which our planet became only a part of a greater system.

Meanwhile, contemporaneously with this influence, which thus ultimately led to a *new natural science* and a *new world picture*, Europe, towards the end of the Middle Ages, was brought into *direct* contact with and under the influence of the science of antiquity, which led to

a resumption of research in the sphere of *social science* also and at length to a restating of the basic problems of ethics at the stage at which they had been left by ancient philosophy. In the fourteenth century—that is, long before the fall of the Byzantine empire and the taking of Constantinople (1453)—Greek scholars had already begun to leave the Greek empire which was continually being threatened by attacks from the Turks and the final fall of which had to be feared. The intellectual connection between Greece and Italy, which had been broken off since the sixth century, was thus re-established. These emigrant Greek scientists in a very high degree promoted the direct study of the literature of ancient Greece, as they brought with them large collections of old manuscripts of this literature and aroused enthusiasm for it by their teaching. Some acquaintance with Latin authors, and in a few places also with certain Greek authors, had no doubt still been kept up even in the earlier Middle Ages, particularly in the monasteries. But this interest and knowledge were but poor in comparison with the close study of all the Greek and Latin writings which had been preserved, and through the teaching of the Greek scholars they were now spread abroad over Italy and thence over the rest of Europe. In this way an intimate knowledge was obtained not only of Greek natural science and mathematics—that is, of the ideas of *Pythagoras, Euclid* and *Archimedes*—but also of the ethical conceptions of *Socrates, Plato* and *Aristotle,* and of the teachings of the Epicureans, Stoics and Sceptics.

As the new natural science, one of the main features in the intellectual life of the Renaissance, continued to add to the results of the science of Greek antiquity, both directly and with the Arabs as intermediaries, so it must be considered another main feature in this intellectual life that a contact, as mentioned above, was now made with the Greek contemplation of ethical problems like which on a purely human basis tried to find a natural explanation of ethical values and, if possible, a scientific reason for them. Both in natural science and ethics the new age fought against the authoritative faith of the mediaeval Church. The new world picture was in conflict with that world picture of the Church, which the Church upheld, even by means of persecutions, as far down as the sixteenth and seventeenth centuries; the attempts to find a purely human reason for morality and right were at variance with the spirit of the mediaeval Church, to whom the conception of the rules of morality and right as the commandments of God would necessarily make every further argument superfluous.

Early in the period of the Renaissance we already meet with thinkers who, quite familiar with the philosophy of Plato and Aristotle, maintained that ethics were rooted in human life itself, and that it was independent of religion. *Pomponazzi* was presumably the first in the new age to maintain the independence of ethics. In a work (on the immortality of the soul) dating from the beginning of the sixteenth century, he tries to show that whatever one supposes about the fate of the soul after death, the moral laws remain unaffected by it. The object of these laws must be looked for in life itself; they are not alien or external commandments to be enforced by hope or fear, but independent demands, having their origin in our own being. A reward or punishment after death is not necessary then, for the maintenance of the moral laws; they secure a good which has its object and its value in itself.

In short the newly awakened and thorough acquaintance with the fundamental ethical thoughts of Socrates, Plato and other Greek philosophers produced a strong intellectual movement; the Greek natural way of thinking had a disintegrating effect on the logic and artificial thought construction of mediaeval scholasticism. The intellectual diffidence and scepticism of Socrates in regard to an absolute knowledge of the world, and his insistence on self-knowledge as the most important knowledge had a marked effect also on this age. Among the thinkers, who took up this intellectual attitude mention should be made of *Montaigne.* In his Essays (which appeared in 1580) he lays stress on the superfluity and harmfulness of every external and supernatural reason for morality; of real value only is the action which is not decided by external precepts, but which springs from the standards of conduct we possess in ourselves. Morality must therefore dispense with support from religion which associates its commandments with hope and fear. Referring to Socrates Montaigne pointed out the narrow limits of our knowledge and its relativity; his attitude was sceptical in regard to all definite dogmatic ideas of the divinity; the latter is worshipped by different peoples under highly varying figures and forms. He, who lived in the period of the wars of religion, thus cherished the same liberty of spirit as Henry IV, the great king of France.

Meanwhile the influence of Greek philosophy on the thoughtful minds of the Renaissance not only made men study the laws of morality, but also led them to seek a *natural reason for the origin of the community, the State,* and the *laws,* the *legal regulations,* laid down by it. Plato's

and Aristotle's investigations, in particular of the State and of justice, the fundamental idea of human society, would of course lead the new intellectual life to a contemplations of the growth of the community and the motives behind it.

Althusius, who lived at the end of the sixteenth and the beginning of the seventeenth century, pointed out that the reason why men united in communities, at first smaller, later in larger ones, was that individual human beings, living isolated in natural surroundings, were often helpless and in want, and were therefore in need of support from other human beings. Men had therefore, in order to help each other mutually, in the earliest times set up a community by an explicit or tacit *agreement,* and entrusted certain persons, the public authority, with the government of the community or state. But as this agreement or contract for the establishment of the government of the community has arisen from the need of the people, from human necessity, it will always be the welfare and need of the people which must be the care of the State, and all government authority therefore issues from the people. *Grotius* later set forth opinions which in the main agreed with those of Althusius quoted here. According to him the origin of the community and of the social authority, of government, was due to an agreement between free people; by combining they sought to obtain legal security and altogether to promote their common welfare. Grotius strongly insists on the legal rules being independent of religion; man is by nature endowed with a social instinct; and he emphasises that certain rules of law and order must prevail both in peace and war among men individually in the single community, the single state, but also mutually between the different states; and by laying stress on these rules (in his chief work, 1625) he became the founder of international law. *Hobbes* agrees with Althusius and Grotius about the rise of society by an agreement between men for their common good. But he takes a more gloomy view of human nature; he does not agree with Grotius that man has an innate need of living in a community. In various works (which appeared about the middle of the seventeenth century) he explains that all that we know about the conditions among savage races and about European nations at their oldest, barbaric stage, is that it is the innate impulse of the individual human being to seize as many of the good things provided by nature and as much power over others as possible. In this state of nature many individual wills clash in the struggle for the good things, in the general plunder. But after many bitter experiences men will find out that this state of nature, this war of all against all (bellum omnium

contra omnes) is so great an evil that they must seek common means against it, that they can obtain control of the benefits of nature far better by living and working peacefully together. The innermost cause of all moral and juridical rules is therefore the fundamental demand dictated by the need of self-preservation, the demand: that peace may reign among men; all virtues arise from this need of peace, and this peace must be secured by a *strong social power*. The authority of the power wielded by the State must be *absolute*. The welfare of the people is the highest object of the power of the State, for the community and the State have been established for the sake of the people and not for the sake of the ruler. But a strong and absolute authority is to the very interest of the people, that is, to ensure peace. Hobbes thus became the scientific supporter of absolute government, and in his time this form of government actually prevailed in France and a number of other states on the continent; for a time it seemed likely to prevail in England too. Hobbes, however, was not interested in absolute monarchy. He lived during the time both of the *Stuarts* and of *Cromwell*, the absolute ruler of the English republic. And there is no reason to suspect Hobbes of wishing to curry favour with the latter by supporting the absolute power of the State under every form whatsoever. What Hobbes, who was anxious and nervous by nature, feared more than anything else, was the *masses*, who could easely be led to *riots* and *revolt*, and in order to keep a hold on the fickle masses and secure unconditional peace for society Hobbes believed a strong, absolute ruling power to be necessary. Whether it was a king or Cromwell, the ruler of the common-wealth, who achieved this strong power in the State, would be a subordinate question in view of the object.

Hobbes did not live to see the final fall of the Stuarts and the introduction of the free constitution under William and Mary, as he died some years before the revolution in 1688. His successor in English thought, *John Locke*, who was from the first against absolute rule, had to leave England during its last period and was among the refugees who prepared the revolution together with William of Orange. His scientific works on society and the power of government (1690) therefore naturally took the form of a defence of the revolution and of the free constitution.

Locke agrees with his predecessors, Althusius, Grotius and Hobbes, that society has originated in a free agreement which followed a state of nature, and that all ruling power exists for the sake of the people and for the purpose of obtaining for it the greatest happiness. He may not think that Hobbes is right in saying that the state of nature was a state of war,

but he recognises that a state of nature brings with it evils so great that only firmness and order in the State can abolish them. But from the point of view that all society and all ruling power exist for the good of the people he maintains that the voluntary support of the people is the sole warrant for a lawful government. The free agreement that succeeded the state of nature must therefore in a certain manner be constantly renewed, tacitly or overtly, when faced by a new government, supported by the majority of the people. And if a government like that of the Stuarts loses this support and becomes the object of general hatred, the people is justified in removing it. William's assumption of the sovereign power was an ideal arrangement because it was a free people that entrusted the rule to him, in return for which he was to promise to respect the rights of the people. The highest power, however, continues to rest wih the people. This is seen when a conflict arises between the executive and the legislative powers (king *versus* parliament)—a conflict about which the English people had had very bitter experiences under the Stuarts—for such a conflict can only be settled by the people. The legislative power must be the highest power and it must be separate from the judiciary power and other factors of the State. The rights of the citizens are best upheld by firm laws and independent judges.

Locke indeed believed that man had certain rights by nature, such as the right to personal liberty and the right of owning property, and these natural rights are not lost because man enters into a society, but on the contrary they must be secured by means of it and its authorities. These rights must be secured against arbitrariness. Thus the right to possess property must not arbitrarily be taken from the citizens by the government: taxes must therefore not be levied without the consent of the majority of the people. Like this right of property, personal liberty must also be secured for the citizens as a natural right. Every form of slavery is contrary to nature.

These principles of *Locke's* can briefly be summed up thus: that a government can only be founded or continued with the support of the majority of the people; that the laws and the law-courts shall protect the citizens against arbitrariness on the part of the executive governing body, *and* that there are certain fundamental rights, rooted in human nature, in particular personal liberty and ownership, which the social power must especially secure. These principles obtained the greatest influence on the thinkers and on the development of society and the State in the subsequent period. Above all they strongly influenced French thinkers like *Montesquieu*, *Voltaire* and *Rousseau*, and through them the

intellectual life of Europe. But at last Locke's theory of government and rights affected the life of the nations too, and led to the reconstruction of the states, and this was due, not least, to the works of the above-named eminent writers. The constitutional life of England, the struggle of the English people for constitutional freedom and civil rights, which were most clearly expressed in Locke's ideals of government and law, became the standard under which the nations rose against mediaeval oppression and a state of law unworthy of human beings. The natural fundamental rights which in the subsequent period were also called the rights of man, found practical expression, even in Locke's time, in that Declaration of Rights which was to be the introduction to and the basis of King William's rule. The North American and the French Revolution were from the very first started as a fight for these human rights, which were inscribed in the constitutions of the new communities. The ideal of the rights of man, however, became of radical importance far beyond these communities and transformed society from its foundations. Thus the struggle against serfdom and all other legal conditions of restraint among the peasantry was carried on in the name of the rights of man, and thus to victory.

An inner connection of causes leads from *Socrates*, who saw a reason for society, for morality and justice, in the happiness of men, by way of the thinkers of the Renaissance, who in accepting these ideas, justified society and its government in the union of men for the common weal, to *John Locke* and the other English champions for the establishment of a connection between the government and the people, and the securing of the human rights of the citizens, and to the later reorganisation of State and society in the name of these ideals. Socrates' critical test of all rules and institutions, from the point of view of their importance for the happiness of man, his revolt against inherited, unjust forms of government, roused a spirit which, though it might through long ages be combated with violence and kept down, could never be entirely eradicated. Centuries were to come, nay more than a thousand years, in which the slavish worship of authority gained the upper hand, namely, in the period of the Roman Empire and in the Middle Ages. But when the free thought which came with the Renaissance again raised its head and brought about a contact with ancient Greek thinking on a free human basis, the old Socratic question was revived during the next following centuries, gradually, with ever increasing strength, the question, as to whether inherited rules and state institutions led to the benefit of mankind and the happiness of the people. This question was gradually solved

by the fall of traditional state regulations, of the hereditary absolute monarchy, the power of the nobility and the Church, and the restrictions imposed on whole classes of the population, but the trial probed so deep and the resistance was so hard that often it conquered only through revolutions.

On the whole in the seventeenth and eighteenth centuries a spirit of great confidence arose that human reason, with the object of the welfare of mankind, would be able to devise not only the right constitution, but also an entirely new system of *natural legal rules*, which ought to hold good among the members of the community. These rules would be founded on a *natural law* which, because it was based on unchangeable human nature and the social contract for the happiness of mankind, would be *universal*, valid in all countries and in all ages, as opposed to *positive law* which often—not least in those days—was a desultory, fortuitous mass of scattered legal precepts and customs, in many cases, moreover, obsolete and due to arbitrary inferrence not dictated by reason, and therefore the positive law varied markedly from country to country and from age to age. *Aristotle* already distinguished between natural law and positive law, and among the Roman jurists we also find this distinction expressed. It was not, however, until the seventeenth and eighteenth centuries that the law philosophers deliberately and systematically drew up a natural law based on the agreement or social contract for the welfare of mankind, laying down rules for the various spheres of life, a series of rights and legal rules which, as they understood it, had their origin in human nature. It was this law, then, which was believed to be inherent and innate in man, which *Goethe* in *Faust* sets up as a direct antithesis of the fortuitous, positive law in force in the different countries, which is the bogey of the youth who have to learn it, which is "inherited like a disease, and which drags itself slowly along from generation to generation."

This conception of natural law, to which most law philosophers and jurists in the seventeenth and eighteenth centuries assented, has been of the greatest importance in the development of law in the civilised world. Not only did its eminent leaders pave the way for radical changes in the constitutions and social conditions of the various countries, but leading philosophers and jurists also fought for radical reforms in a number of departments of the law, both penal and civil law. They maintained, firstly, that the rules of natural law held good wherever positive law contained no rules; but many even maintained that positive law, when contrary to natural law, must though yield to it.

The proposal could of course not always be carried into effect it did happen in certain instances. Thus again and again in European states at this time, under the influence of natural law in judiciary practice, that latter mediaeval, barbarous *penal regulations* were either mitigated or not applied. In the domain of *civil law* there were often large, legally undefined spheres, owing to the character, frequently sporadic and altogether incomplete, of the inherited laws. In these instances natural law exercised a very considerable and beneficial influence, and this was due to the fact that the rules here laid down by the philosophers and jurists of natural law were in numerous cases by no means rules abstract or remote from actual life, but on the contrary such as the natural, practical needs of the community required in the various spheres of life, and often they had previously shown their efficiency by gaining ground in contract practice. It is true that there were also philosophers of natural law who, without practical experience, set up principles or ideals of law which did not take sufficient account of actual conditions, and which therefore necessarily failed in real life. If natural law, as a whole, however, became of such immense practical importance in reshaping or subverting constitutions or social conditions, in the creation of international law, in the supplementing or further elaborating of the rules in the department of civil law, in amending or mitigating many obsolete legal rules, and finally in creating entirely new civil law—books, it was undoubtedly because the leading philosophers of natural law were by no means remote from actual life, but often highly *practical men*, in close touch with their time and its practical needs; their theories of natural law were therefore only what practical legal life needed. The teachers of natural law were above all men like Althusius, Grotius, Locke and Montesquieu, who had had experience of practical life and fought in its battles, and who therefore, having an intimate knowledge of its conditions, could work for radical reforms in legislation and judicial practice.

With the nineteenth century, with the coming of the *historic* school, especially with men like *Savigny* and *Puchta*, a strong reaction set in against natural law. It must be admitted that, even the most eminent leaders of natural law, did not sufficiently appreciate the value of inherited law and of preserving a certain continuity with it. Likewise they often failed to understand that the slow, organic growth of law reforms would add a weightly testimony of experience to the value of these legal reforms. On the other hand this one-sidedness of natural law was its strength. It would not have been able to act like a liberating and refresh-

ing gale that swept away the numerous antiquated, mediaeval regulations all over Europe, if its adherents had possessed an intimate knowledge of history and a profound reverence for the slow, organic growth in the life of legal ordinances. It has often been pointed out that natural law has given special proof of its lack of historical understanding by explaining the origin of society and the establishment of a governing power as the result of an agreement or contract between individuals, since such a contract can of course not generally be pointed out at all, and the rise of society is as a rule a historical and very complex phenomenon. Here it must be observed, however, that the theory of natural law laid down that the social contract might be supposed to have been made *tacitly* as well as overtly, and it is doubtful whether the leaders in this intellectual system conceived of this contract as a real historical event at all. The chief thing for them, at any rate, would be to give a *reasoned basis* for the origin of society and the governing power, as a *coalition* of human beings for their common good. Incidentally *Hume*, one of the philosophers of the eighteenth century, had already clearly and distinctly pointed out early in that century that the agreement (convention) on which society is usually supposed to be founded, according to the theory of government, must not be taken as a *promise*, but only as a general sense or feeling of common interest. The mutual respect of men for each other's right of ownership does not depend on any promise, nor on an agreement in any other sense than *e. g.*, between two men rowing a boat together. Further, Hume points out that the originally savage state of nature, in which state philosophers asserted that men lived and fought in isolation, is a fiction, as human beings have always lived in communities, at any rate in the community of the family.

Hence the starting-point in natural law and in all ethics and law philosophy since the Renaissance was that of Socrates: the evaluation of society and all its arrangements, of all rules of morality and law, from the point of view of their ability to promote the happiness or welfare of mankind. Expressions like the public benefit, that which aims at civic welfare, the commonwealth, are the favourite expressions of the eighteenth century in all public affairs. In the restless eagerness for reform of the eighteenth century there was no particular reflection or doubt about this benefit, or what the welfare or happiness of society or the individual constituted. Most of the philosophers who dealt with the theory of morals and natural law during the period from the Renaissance to the eighteenth century take the Socratic standpoint for granted, that is, that the reason for morality and justice is to be found in man's seeking for happiness, and

that reason or wisdom can find the way to it. We find the most thorough presentation of this trend of thought in *Locke.* Taking up Socrates' idea, and the idea of Greek ethics altogether, that since human effort is directed by the desire to attain happiness or pleasure, and to avoid pain, our actions can be so governed by reason as to attain this end, which means that the constant wish for an ever lasting happiness will subordinate present, lower wishes to itself. Locke says: "The highest perfection of the intellectual nature lies in a carefull and constant seeking for true and lasting happiness."

Meanwhile a few philosophers in the seventeenth and eighteenth centuries began to contribute a deeper investigation of the *psychology* of the *feelings* and *passions;* and this led gradually to the question being raised whether morality—and the law—really depend on reason, as maintained by Socrates' idea, or on feeling. A profound psychological understanding of human feelings and passions is encountered, in particular, in *Spinoza* and *Hume.*

Spinoza's chief work, Ethica (1677) contains in the two first parts only the speculative view of life, which cannot be maintained; in the subsequent parts he gives contributions to the psychology and ethics of the emotions and passions which are of value to this very day. He emphasises (as Bacon did before him) that no passion or feeling can be restrained or suppressed except by a contrary and stronger passion or feeling. Several times he stresses the force of the emotions and passions and their influence on the destiny of man. On the other hand he agrees with the usual, inherited opinion that man aided by reason is able, to a certain degree, to control his feelings and passions. Virtue in fact consists in acting under the control of reason; this is a leading sentence frequently occurring in Spinoza, and is just what Socrates taught. The sage has this advantage over the ignorant, that his soul has power over his passions and felings. It is not clear, however, what the further relations are between this power of the soul or the superior control of reason, and the feelings, emotions and passions.

Hume looks at the problem with a keener and clearer eye, though so far as I can see his explanation also ends in an enigma. I his chief work (A Treatise of Human Nature, 1739) he says (in his treatment of the psychology of feelings and morality) that nothing is more common in both philosophy and daily life than the talk about the struggle between passion (feeling) and reason, and the assertion that reason must take precedence of the passions and that men are only moral in so far as they regulate their actions by the dictates of reason. Contrary

to this common opinion, however, Hume maintains 1) that reason can never be a motive for any action of the human will, 2) that the incentive to an action, to the will, can only be a feeling or passion. Now as morality is something that produces volition, action, it must have its origin in feeling, not in the understanding. If the distinction between good and evil were to depend on a rational conclusion, it would either have to be proved to be in accordance with an observation of reality, of its objects, or with a certain relation between them, such as likeness or difference in quality, quantity or number. But nothing of the Kind is the case. Hume remarks, in particular, that while the judgments of our understanding on reality, on its objects, always express that something *is* or *is not*, the propositions of morality always state that something *ought* or *ought* not to be. But if thus our distinguishing between good and evil, moral and immoral does not depend on any distinguishing by our reason, it can only depend on a difference in *feeling*, that is, in a feeling of pleasure or disinclination. If we witness a murder being committed the verification of reality by our reason tells us nothing but that a certain external action was committed under such and such external circumstances in the world around us, but it gives us no moral estimate. This arises, on the contrary, from the feeling, in this case, of the *abhorrence* which the action arouses in us, and which is the cause of our condemnation of the action. Altogether vice is signified by disgust, virtue by pleasure, but these feelings of pleasure or disgust have a special character.

Meanwhile Hume is not quite clear or consistent. While, as mentioned above, he generally states that all our actions spring from our feelings or passions, he says in other passages that after all reason has in a certain sense something to do with our actions and our direction of them. He says that in the choice of means to obtain feelings of pleasure and avoid those of disinclination we make use of rational conclusions. The motives of our action do not proceed from, but our actions can be guided by reason. In his treatment of jurisprudence he says that justice is an "artificial" virtue, and it appears from several utterances that by this Hume means that a legal arrangement between men, both as to the division of labour and the distribution of good things, the recognition of the right of ownership, the personal protection of the law, and so forth, are obtained by men through the use of intelligence and judgment. When man lives and works in isolation his capacity for work is too small to perform any considerable task, and he must also perform many different kinds of work, so that he cannot attain any great efficiency in any of them. By combining forces the power of men is

considerably increased; by the division of labour ("the partition of employment") the effiency of each man is also increased. These advantages, as well as security of person and property and other benefits in the social and legal order are not derived from Nature, from man's innate feelings and passions, for in his uncivilised state man is entirely egoistic and shortsighted, being absorbed only in his own needs (and those of his family), but these legal rules have, on the contrary, arisen from a kind of "artifice" which consists in "the judgment and understanding, of what is irregular and incommodious in the affections." So that in this sphere too—the juridical—reason is able to exercise a regulating influence on the feelings and passions.

Thus we do not find, either in Hume or Spinoza, any further psychological explanation of how our actions can be said to be determined or caused by our feelings and passions, when it is admitted that the latter, and consequently our actions, can at the same time be guided and regulated by quite another factor than feeling and passion, that is, by reason.

Even though the relation between reason and feeling in morality had thus gradually begun to be a psychological problem, yet, as will be seen from the opinions of the last-named authors, that part also of the Socratic standpoint still held good (a) that morality, at any rate is very largely determined by knowledge, by understanding, and its superior guidance. And the other part of the Socratic standpoint (b) that the opject of morality and law is to obtain the greatest possible happiness for human beings, is accepted, as shown by the thinkers of the Renaissance and by far the majority of philosophers of morality and justice since then. This point of view became the great factor in natural law in the need for reform in the eighteenth century, in the revolutions of that period. With regard to the *distribution* of happiness or benefits, several philosophers of morality and justice maintained early in the eighteenth century—in opposition to the enormous inequality in the society of the time—that *the greatest possible happiness for the largest number of people* should be the aim of our actions and of the social laws (Hutcheson and Beccaria). Early in this period we also encounter among a few philosophers the phrase that everything that serves or tends to promote human happiness, whether actions, institutions, laws, etc., is *useful.* Thus *Spinoza* defines the *good* as everything that is *useful* to us, for the preservation of our existence; and he emphasises, *inter alia,* that nothing is more useful to men than man himself, that nothing is more useful for the preservation of man's existence than a good life and work in common

with other men. And *Hume*, in mentioning a number of legal rules, remarks that they are determined by or based on their *utility*. At random with this expression, however, he also employs words like interest, self-interest, public interest. We also find the psychological basis of utilitarianism already clearly emphasised in several predecessors, notably in *Locke* and *Hume*. Locke emphasises that what moves our will, and what altogether is the aim of all human beings with their actions, is the yearning for happiness, for as much pleasure as possible and the avoidance of pain; that which we call good is that which creates or increases the feeling of pleasure and diminishes pain; and what we call *evil*, is that which causes pain. *Hume* says that the feeling of pleasure and pain is the most important source and motive in the actions of all human beings.

There was therefore nothing new in the idea which *Bentham* set forth in his chief work (An Introduction to the Principles of Morals and Legislation, 1789), that the common aim of all human action, of all morality and public activity is the happiness of man, that the utility of an action or institution consists in *its ability to promote this happiness and to prevent misfortune* and pain, that the principle of utility—on which his whole work is based—therefore signifies the principle which approves or disapproves any action according to its tendency to increase or diminish the happiness of the people in question, this being applied to the actions both of individuals and of governments, and the purpose of morality and law, taken as a whole, must then be the greatest happiness of the greatest number of people. Bentham, however, has earned considerable credit for attempting, more consciously and systematically than his predecessors, to account for the origin of these factors in human actions and morals. According to Bentham all human action and conduct are guided solely by the two human feelings, pleasure and pain, by a striving to attain as much delight and pleasure as possible, and as far as possible to avoid pain. This law governs the whole of man's life. When we obey a moral law and sacrifice a strong inclination for the sake of it, and sometimes even choose pain rather than pleasure, this also only appears to be so, for in this case what happens is in fact only this, what we prefer a more lasting pleasure to a passing one, the pleasure gained by the moral conduct in the long run exceeding in quantity the pain involved in it. Among the factors that determine for us the magnitude and importance of a pleasure or a pain Bentham particularly emphasises the intensity, duration, security or insecurity, nearness or remoteness of these feelings. With regard to the *distribution*

of pleasure or happiness, or rather of the benefits that produce it, Bentham maintains that as it is not only a question of creating the largest possible amount of feeling of pleasure itself, but of creating this feeling in the largest possible number of people, it is not right that the benefits which are the source of pleasure, in particular wealth, are given abundantly to some and meagrely to a great many others. A better, more just distribution of benefits in society, a counteraction of an economic exploitation of the weaker members of the community, was therefore a determining factor in certain of Bentham's efforts for social reform. Otherwise Bentham's greatest merit is to be found in that taking for granted the principle of the greatest happiness of the greatest number, he made many suggestions for reforms of the social order, in the domains of the right of ownership, of the administration of justice, of the penal law and the constitutional law, suggestions which had a considerable influence on the later development of legislation, not least in England, and of which several must be considered to contain valuable improvements.

Owing to the deliberate and consistent terminology employed by Bentham, according to whom the principle of utility is the foundation of all morality and justice, and which in his opinion coincides with the principle of the greatest happiness of the greatest number, the name of utilitarianism has naturally been given to his ethics. It gained the whole or partial adherence of most philosophers of morality and law in the latter half of the nineteenth century. In England Bentham's theory thus found an ardent supporter in *Stuart Mill*, whose most important scientific contribution was made in the field of epistemology (in his chief work: A System of Logic, 1843), but who gave a short and clear presentation of Bentham's conception. In Germany *Ihering* was strongly influenced by this idea. He points out that the end of man is self-preservation; and Nature gains this end when man involuntarily seeks pleasure and avoids pain; and as man, by striving after this, gains a sum of pleasure which is normally greater than the sum of pain, life is preserved. Parallel with the general law of causes affecting all nature, that every effect or change has its cause, there is a law in the organic world that every action has its *purpose*. The human purposes are the creators of all human actions, of all human conduct: the *purpose* is therefore also the *creator* of the whole *legal system* as well as of *morality*. Hence Ihering calls his work in this field: the purpose in law (Der Zweck im Recht). This all-embracing purpose, from which all great and small purposes or interest arise, is the pre-

servation of human life itself, the ensuring of its happiness or well-being, the averting of its pain or misfortune. On one important point, however, Ihering thinks that he cannot agree with Bentham. He maintains that the object of law and morality is the preservation, not of the single individual but of human life in its entirety, of the *human species* (das Leben der Gattung Mensch), such as it is organised in *society*. In regarding society as an organism, an independent being, the object of law and morality is to be of lasting benefit to the life and welfare of this being, this human society, and to secure its conditions of existence. In this way only is Ihering able to find an explanation of disinterested, self-sacrificing actions. That is useful which promotes, advances our object. But only that which promotes, advances the whole, the socially useful, is the objective of morality and law. I think that Ihering here overlooks the fact that society as an independent being or organic unity is only a symbol, and that this symbol does not help us to evade Bentham's starting point, which is no other than the Socratic one: happiness for the individual. If one would explain or give a reason for morality and law on the basis of the well-being or happiness of mankind, one must necessarily *begin* with the individual and not with several or many individuals of this species under one head.

During the twentieth century utilitarianism has been the subject of a keen and searching criticism, and notably England, the country in which it first arose and found its greatest advocates. In the world of English philosophy in our century the assertions of this ethical trend of thought in all its details have been subjected to a very close examination, especially through the keen and thorough investigations of *G. E. Moore* and *Hastings Rashdall*. Behind utilitarianism, as mentioned above, lies the same doctrine that was the starting-point of Socrates, which also found great adherence in the later Greek philosophy, namely that all man's exertions aim at reaching happiness, the feeling of pleasure and avoiding pain, a doctrine which is often called hedonism (from the Greek word for pleasure, the feeling of pleasure: hedone). The criticism of utilitarianism is now directed partly against the particular form of hedonism given to it by utilitarianism, partly against hedonism itself. Incidentally, as far as that particular form is concerned, there has been some uncertainty as to the formulation of the principle of utility, this being first expressed by Bentham as the greatest possible happiness of the greatest number of people (which has become the most frequent formulation), but later he chose simply the form: the greatest possible

happiness, because two elements of quantity are here at variance with each other—the intensity of happiness or pleasure and the number of persons among whom it is distributed—and because their respective limits could not be fixed. Now the diffusion of happiness among as many people as possible, according to the latter formulation, no doubt does denote an important purpose—ten thousand happy people are supposed to give a greater collective sum of happiness than a few or a single happy person. Yet this distribution is relegated to the second rank according to the latter formulation rather than according to the former. It has been justly pointed out that in view of this fundamental idea of utilitarianism: the greatest amount of pleasure, it must in consistency be supposed that if, *e. g*, 10,000 people can obtain an intense feeling of pleasure by watching a bull-fight or a fight between gladiators, this large amount of pleasure must greatly outweigh the sufferings of a single person or a few people on the same occasion, and therefore be ethically justified. Yet it is exactly such a quantitative calculation that will be decidedly abhorrent to the higher moral or humane consciousness of our times. This offensive calculation, however, can only be avoided by entering upon a classification of pleasures, by distinguishing between the higher and lower among them. One is reminded here of one of Kant's ethical principles, that no human beings must be treated as merely a means for others, but must be treated as purposes in themselves.—Further, it is objected that when the aim of human life is the greatest possible happiness or pleasure, this cannot lead mankind to take any interest at all in the *distribution* or *spreading* of happiness, but only to the individual seeking as great a happiness as possible for himself. No reason whatever can be given why A should take an interest not only in A's happiness but also in B's, and in the happiness of all other members of society, and yield up some of his goods, so that B or others may obtain a share. It has been pointed out in the most recent English philosophy that from egoistic hedonism (the striving of the individual after his own happiness), to universal hedonism or utilitarianism (the working of the individual for the well-being of all, of society), there is a gulf which no experiences, be they ever so numerous or extensive, can span.

Further it must be recognised that in the sentence about the greatest

Moore's above mentioned work is: Principia ethica, 3. Ed. 1929, *Rashdalls* work is: The theory of good and evil. A treatise on moral philosophy, 2. Ed. Vol. I and II, 1924.

possible happiness Bentham operates with the idea of *size* or *quantity*, which belongs to the external world but not to that of the soul. Hence it is a question whether one must not use other words, other formulations in the latter sphere. It is no doubt true that we find, again and again, that one pleasure is "greater" than another, and that a series of pleasures at intervals give greater happiness than a single one of the same kind. The word "great", however, should perhaps be avoided, and the word "intense" preferred, when it is a question of pleasure or pain; and when Bentham, in considering the extent of the pleasure, lays stress on its intensity and duration, it must be pointed out that these two elements stand in inverse relation to each other. The more intensive a happiness or pleasure is, the shorter, as a rule, is its duration.

While *Bentham* kept solely to the so-called quantitative definitions, that is, to the intensity, duration and number of the feelings of pleasure. *Stuart Mill* maintains that there are also differences in *quality*, namely between the so-called higher and lower pleasures or enjoyments. This distinction between higher and lower pleasure is age-old both in philosophy and religion. Thus we saw how both Plato and Aristotle and even Epicurus recognised this distinction. It was deepened by Christianity, the new world religion, but in the philosophy of the Renaissance we meet with attempts to give a reason for the distinction on a purely human basis. No real reason, though, was given either then or later. Stuart Mill tries to find a reason for the distinction by referring to the psychological fact that those people—or most of them—who have tried both kinds of pleasures, both the so-called higher or spiritual ones and the lower, prefer the former and will not give them up for any amount of other pleasure. To this the critics in recent English philosophy object that if it is really a matter of stressing not only the quantity of pleasures, but also the quality, Mill must practically admit that there is something else which mankind desires besides the greatest possible pleasure, and this seems to shake the foundation of utilitarianism and hedonism. —Incidentally it would be possible to think of another alternative, namely, that one might be able to establish that the so-called higher pleasures, either as regards intensity, duration or number, were superior to the so-called lower. Mill, however, does not seem to have entertained this thought, and in any case neither he nor anyone else has given any proof of such a translation from the "qualitative" to the "quantitative" in the feeling of pleasure.

Now whether the idea of quantity or quality be applied, a "meas-

uring" of pleasure or a determination of their differing importance in the life of mankind, seems to be a more complicated problem than utilitarianism had imagined.

Weightier still, however, are the objections directed against the very core of utilitarianism and hedonism as a whole, purporting to show that the doctrine of these trends of thought, that all human desire is a desire for pleasure, is psychologically wrong. The theory can, moreover, mean *either* a, that what man practically strives to obtain is happiness, the feeling of pleasure and the avoidance of pain, *or* b, that happiness or pleasure is the only thing man *ought* to strive after, the only right object of all human actions.

a. Psychological hedonism (and utilitarianism) is untenable, for (1) instances can be given of many cases in real life in which humans, as well as animals, act from an instinct of *self-preservation* inherent in the race or individual, quite regardless of whether the action brings about pleasure, or suffering, or even death. In both the animal and human world, for instance, the mother instinctively protects her offspring against every danger, even if in so doing she exposes herself to the greatest sufferings or death. The individual human being also instinctively, for his own self-preservation, performs actions without regard to desire or disinclination. But (2) it can also be shown that in the choice between pleasures man by no means always chooses the greatest possible total sum of pleasures. He who is dominated by an irresistible *passion* or *urge* succumbs again and again to the craving for a momentary enjoyment, although he fully realises that afterwards he may expect numerous sufferings and sorrows, long periods of regret over a wasted life and other things, which in his own opinion too many times outweigh the pleasure of the moment, which after all he has not been able to resist. The gratification of an urge may even bring the ruin of the individual in its train.

In other words, human beings do not act so reasonably or according to plan to attain their object: the greatest possible sum of pleasure, as assumed by psychological hedonism and utilitarianism. Man is in too high a degree a creature of instinct and urge for that.

b. Now if it must thus be recognised that the greatest possible sum of pleasure is not always the *actual* aim, it may perhaps be maintained that on the contrary it is the object that *ought* to be aimed at. This leads from the psychological to the ethical question, but these two questions are often intermingled. In the same place in which *Bentham*,

as mentioned, states that the two factors, pleasure and pain, do in fact guide all our actions, he says, incidentally, that it is these factors alone which decide what we *ought* to and *must* do, without being conscious of his transition from the psychological to the ethical. We meet with the same confusion in *Stuart Mill,* when he maintains that the only proof that anything is desirable is that men actually want it; and every human being desires and strives after happiness; happiness or the feeling of pleasure—and the greatest possible pleasure—is therefore desirable. But by his own distinction between higher and lower kinds of pleasure Mill shows that not all the pleasure aimed at is desirable. Hence one can not get away from the difference between a: that which actually *is,* and b: that which *ought* to be. Meanwhile, if we realise this difference, we can of course easily modify utilitarianism so that we admit that we practically often choose pleasures which—viewing at life as a whole—do not give the greatest total sum of happiness, while at the same time maintaining that in all our actions we ought to aim at this sum.

Next, however, it must be pointed out that in the question of how we *ought to be* or what we ought to aim at, the fundamental problem arises: Why must A not only aim at A's but also B's happiness, work not only for his own welfare, but for that of others?

But another question, deeper still, arises, and touches the basis of all ethics, of all morality and law, and that is the qpestion: What does it mean in any case that we *ought* to be or to act in this or that way? And how can we know at all that we ought to do this, that, or the other? All cognition, all knowledge, seems to tend solely to deciding that something *is* thus or thus. No experience or knowledge of what actually is seems capable of giving us any idea that something *ought* to be. From a number of things which *are* we can conclude with a certain probabillity that something or other *will* possibly happen; but apparently *no knowledge,* no *acquaintance with facts* leads to the result that something *ought* to happen.

An attempt has been made to get over this difficulty by maintaining that beside and parallel with the universal fundamental ideas and laws, holding good in all the experience of our senses, such as the laws of time, space and cause, there is another, equally fundamental idea, a law which is just as universal for action, namely the idea of duty, the general moral fundamental law. It is *Kant* who has given this ethical fundamental conception. He maintains in his theory of knowledge that the law of causation does not spring from experience, from sense obser-

vation, but is *a priori, i. e.*, a form in which our spirit receives all sense observations, all experience, and is therefore valid for all experience. And in the same way there is a universal moral law which does not spring from experience either, for experience can never be the basis of a universal law; but the moral law holds good just as universally and unconditionally for all action as the natural law, the law of causation, holds good for all that happens in Nature. The universal moral law, which does not proceed from but is independent of experience, imposes an unconditional duty upon man in all his actions, regardless of pleasure or pain (a categorical imperative). This ethic is therefore set up as an *ethic of duty*, in opposition to the ethic which, like utilitarianism, is founded on pleasure, on well-being, an *ethic of value*. If we ask Kant, what then, is this universal moral law which can be co-ordinated with the law of causation, he answers that it says: You shall act so that the rule that you follow may become a universal law; and this law is to be a purely formal law of reason. Kant thought, logically, that from his formal, basic law he could *deduce* the ethical principles which he believed to be the most important, in particular the principle that no human being must ever treat another human being merely as a means, but must always treat him as a purpose. Kant, however, is incorrect in thinking that these and similar ethical principles can be deduced from the supreme and universal, formal law pointed out above. For if this is really altogether formal, that is, empty, it is not easy to see how it can have any ethical content. Many people follow the rule as a universal law that one must always benefit oneself, regardless of whether it injures others or not. If one would reject this law as a law for everyone, one would have to give another reason for it than Kant's formal one. Kant's erroneous reasoning here consists in assuming in advance and postulating that one cannot set up, as a general rule of conduct, a mode of action which would be injurious to mankind as a whole if it became general. In reality a surreption has unwittingly crept in behind Kant's formal law, suggesting that a mode of action which is to be made a general rule of conduct, can only be such as charitable people can approve, and it can then only be that mode of action which benefits mankind. Kant's duty ethics thus end, ultimately, on close consideration, in value ethics, even in that form which this ethic began to assume in his time through Bentham and others, namely utilitarianism, which saw the ethical ideal precisely in the well-being of mankind, or the greatest possible happiness for the greatest possible number of people. Here, however, Kant's ethics gets into the same difficulties as all other

ethics of value. It does not seem possible, however, to co-ordinate an ethical conception with an actual knowledge of causation. From our knowledge of what actually is there does not seem to be any scientific bridge leading to something that ought to be, to our having to act in a certain manner.

A strong tendency in ethics and sociology has therefore in the most recent times been advanced to maintain that a really scientific investigation of morality must be limited to verifying the social forms, manners and customs actually in existence, as well as the conceptions of morals and the like. Jurisprudence must be limited to establishing what the law is, actually in force, what the statutes and legal customs are and to describing historically the social forms, legal rules, manners and customs as they change down the ages and from nation to nation, while all consideration of social forms, rules of law and morality as they *ought* to be is regarded as unscientific. It is seen too, that as soon as there is a question of how society and justice and morality in this society ought to be constituted, we find the most dissimilar political and social views prevailing, highly individual and markedly subjective in the different persons concerned. Ideas like "good" and "evil", "duty", "value", "purpose", are therefore, according to this conception, entirely lacking in general scientific validity and are only the expression of individual feelings of pleasure or disinclination at particular moments among particular definite groups of people. These feelings vary from nation to nation, from age to age, from individual to individual and we lack every scientific standard for the deciding of why one kind of feelings in regard to human conduct should be "more right" than another. No other science in this sphere can be found than a *strictly descriptive account* of the ethical as well as the non-ethical phenomena without giving preference to any of them, a verification of the actual interrelation of causes in the individual and social spheres of human life.

According to this conception ethics—the doctrine of morality and justice—in the sense which this doctrine has had from the days of ancient Greek philosophy to the present day, as a theory of how men *ought* to act, is therefore not knowledge and *cannot be knowledge*. Knowledge or science is and always will be a knowledge of what *is*. A knowledge that something ought to be cannot be understood, it is in fact mysticism. This trend of thought may be called: *The ethical nihilism* or value-nihilism.

Thus recent thought in the most important spheres of human life has thus ended in the same negativism or scepticism as that in which the

society of antiquity ended towards this close of that period. So that the present day, after an ethical development and consideration of ethical problems for over two thousand years, we have really not advanced a step further than Socrates and the subsequent presentation of problems. *Socrates* maintained, as we saw, that ethics as a theory of how we ought to act, *was knowledge*. The scepticism of later Greek philosophy denied this. But the scepticism or negativism of our times likewise denies, as shown above, that a theory that men ought to act in a certain way, a doctrine of good and evil, of value and duty, depends on any kind of knowledge or science. Here assertion still stands opposed to assertion.

As I tried to show at the beginning of this investigation on the currents in the domain of ethics through the ages, it happened that a question on the *stating of a problem* in regard to Socrates' chief assertion *was forgotten*. The first and most important condition for attaining to a knowledge of the truth is to state the problem correctly. I maintain, however, as I began by pointing out, that the problem of the basis of ethics, of the basis of morality and law, the most important of all social questions, *has never been presented correctly*. When Socrates insisted that ethics, the doctrine of how we ought to act, is a knowledge, a science, he should then, as I showed, have been asked what was really, going more deeply into the question, to be understood by *knowledge or science*. But this question was not asked. Yet it is nothing less than the *fundamental problem of ethics*. But is is still more; it is also the fundamental *problem of science*, and of the theory of science, the problem which must come first in all thinking that claims to be scientific. We must carefully examine what we understand by the phenomenon to *know* or *apprehend* something before we can decide at all whether any kind of spiritual activity is to be included in or falls outside the scope of knowledge or apprehension. Here, as always in the deepest and most difficult questions, we begin by regarding something as self-evident, in this case something that seems clear to everyone: what it means to know something. But as soon as we begin to think more deeply over the question it turns out to be anything but clear and simple.

If we consider the numerous examples in Plato's Dialogues that Socrates takes from the world of handicrafts, art and other kinds of skilled work, we receive the impression that in his idea of knowledge Socrates kept to a certain popular notion, which was very common in his time, and which is still current among the people of our own day,

namely, that knowledge is an idea of or insight into how a thing *can be made* from the point of view of a craftsman or, in a wider sense, technically. In everday speech it is said: He *knows*, how he can produce this or that thing. This form of speech or meaning of the word knowledge is rather close to the application of the same word in experiments in natural science. Thus we say that a chemist knows, *e. g.*, that when the substance X and the substance Y are blended, the substance Z will arise. In a somewhat similar manner we say that an artisan knows that when he uses the tool x, *e. g.*, a hammer, upon a material y, *e. g.*, a piece of metal, in a certain way, a certain object z will be the result. Socrates, however, forgot to ask here whether this meaning of the word knowledge, which depends on a technical application of the law of causation, and which tells us that something will or can happen by the blending or treatment of substances, can be co-ordinated at all with what we call a knowledge that we humans *ought* to act in this or that way, and whether this ethical knowledge can be called knowledge. Next, however, Socrates did not compare this second concept of knowledge with a third one, namely knowledge that something *is, exists*. If Socrates was not particularly interested in the last-named, third meaning of the word knowledge, that is, a knowledge of what the world really is, it was because it was that kind of knowledge which he regarded with extreme distrust. When we say that something exists and what it is really like, this coincides in the popular conception with what we call reality or the real world. When we say that the earth is such and such, the popular idea is that these statements of ours can cover reality, the real world. But what the world really is, about this Socrates says that he knows nothing. This Socratic negativism as regards our apprehension of the real world cannot be rejected: *our experience, our conception* of reality is one thing; another is whether our experience, our conception coincides with reality, with the real world.

The foregoing has presumably shown, firstly, that we take the word *knowledge* at any rate in three different senses, secondly, that the opposite trends of thought — the assertion that of ethics as a knowledge and negativism in regard to all ethics—each rest on their own meanings, and that of both of them one is right to a certain extent in saying that those senses in which they take the world knowledge are rather popular and not carefully thought out. Both conceptions criticise each other's ideas of knowledge and deny their correctness, but neither of them has critically thought out its own idea.

When we consider that like the ages of antiquity we have not yet arrived at a clear apprehension of the ethical values, morality and right, not knowing whether they depend on individual feelings or on knowledge; that we cannot arrive at any agreement about it, for the simple reason that we have not got to the bottom of the problem as to what constitutes the phenomenon we call knowledge or science, it is no wonder, that our times, when our civilisation is exposed to such disasters as world wars and overthrow of states, easely become a prey to fanatical views of life, mutually hostile, with no possibility of understanding each other. Many of the wisets minds distrust the future of our civilisation, nay of the human rave. The nineteenth century was decoyed by the great number of external, technical advances into believing in a great future for the sovereignty og reason, in a development of the masses of the people in the direction of greater reasonableness, greater forbearance, in the subjugation of hatred between races and states, between religious and conflicting social views of life. The reign of liberty and reason of which men dreamed in the dawn of the popular risings and revolutions which created the Declaration of the Rights of Man, was gradually to be realised among the masses of the people through a steadily developing democracy further guided by reason. This belief of the nineteenth century in the growing dominion of reason and liberty among the people and among the nations has burst like an bubble under the stress of the wars and revolutions of the twentieth century. Instead of reason and science spreading to the broad masses of the people we have seen a re-awakening of national passions, of hatred between the nations and between deeply divergent political and social movements. Thinking a question over objectively, considering every aspect, is rejected in these struggles as impossible, as an illusion leading only to endless disputes and a despairing scepticism, while the times demand faith, unconditional and unswerving faith in great national ideals, in absolutely unerring lines of direction. In a certain sense it must be admitted that these new movements are right, for when there is so much disagreement in the very laboratories of science about the most fundamental questions of human life, as shown in the foregoing, about morality and right, and about the fundamental idea of science itself, when the end has been a scepticism or negativism which we recognise from the last days of Greek society of ancient, in a dissolution and confusion in which assertion stands opposed to assertion, one cannot wonder that the masses of the people give themselves up to mysticism and an enthusiastic faith in the most varied social,

religious and national ideals or views of life or to a moral nihilism which dissolves all ideas of duty and leads to an egocentric life without any restrictions, with ruthless disregard of the rights of one's neighbour.

Since these deeply conflicting views, which have taken hold of the various masses of the peoples, and those who hold them are unable to convince each other by means of reason, and cannot mutually obtain a heaving, the times have ended in a chaos of fanatical fights between ideologies, peoples, and races. When the spiritual general staff, science, which ought to be the best buide of the people, fails in the question at the core of human life, it must put up with the leading of the masses going over to those who appeal to the feelings and passions of the people.

It is not beyond possibility, however, that the quiet laboratory of science may become a retreat against fanaticism and hatred, and that it may still have a task to perform in the great, vital questions of mankind, in the midst of all the spiritual confusion and downfall and wars between the nations. Science *may* become the rescue of the human race, faced with the threatening spiritual and material destruction of civilization. I believe that Plato is right in his observation, quoted above, that "Either the philosophers must become kings in the states, or they who are now called kings and rulers must begin to study philosophy in a genuine and satisfactory manner. If this union of political power and philosophy is not brought about, and all the large number of minds that are at present turned in one direction alone are compelled to give this up, there is no possibility of putting an end to the evil in the states, nor, I believe, in the human race. And until that happens that order of the State which we have described in words will never come within the region of possibilities and see the light of day." But if philosophy or knowledge is to become the leader of the nations it must, as I have tried to show, above all be quite clear about its own fundamental principles for they are, after all, the guiding principles of human life.

Meanwhile we can perhaps establish, as a result of the foregoing investigation, that we shall not obtain any light on the ethical values, morality and right, on the problem whether these factors depend on individual feelings or on objective, valid knowledge, until we have examined and understood the fundamental problem in all science and knowledge:

In what does human *knowledge* and *scientific apprehension* itself consist?

When we ask whether morality and right can be founded on a *scientific basis*, we must add a still more profound question: *What is science* and how can *science itself* be validated?

Ethical Nihilism or Value-nihilism. This trend of thought is in the recently becoming more and more prevalent both in sociology, political economy and jurisprudence. With many ethical nihilists consistency is not, however, the strongest point. This applies both to many older and younger authors within that school. On principle they reject all moral evaluation, but often they cannot themselves unconsciously refrain from entering upon evaluation in their considerations.

Ethical nihilism has penetrated far into sociology, especially into French and English sociology. *Comte* emphasised that the last stage of all sciences would of necessity be Positivism, in opposition to the mystical speculation of earlier times, that is, would be science based on facts alone, on observations of reality and its real coherence of causes. This would naturally apply not only to the natural sciences but also to the new social science, to sociology. Henceforth all religions and ethical values should, strictly speaking, be excluded from sociology. Comte himself, however, ended in a belief in the progress of mankind, in a mystical religion of humanity. — *Durkheim* is very emphatic that sociology must everywhere be based on empirical observation of reality and its interrelation of causes, and that one must divest oneself of all preconceived opinions. In his work on the method of sociology (Les règles de la méthode sociologique) he points out that the special object of sociology is the law, custom and usage prevailing in a community, existing institutions and organizations, etc., that these phenomena have an objective existence independent of the individual, that these social phenomena must be observed as things, and that all political, religious and moral propositions must be kept outside this observation. Later in the same work, however, he says that the task of social science cannot be only to examine and describe the phenomena, as science in that case would lose every practical importance, and that one must find an objective criterion, connected with the phenomena themselves, making it scientifically possible to distinguish between moral and un-moral phenomena, between health and sickness; and he thinks that the idea of complete adaptation is the criterion of health, which presupposes an expediency of Nature. With this we have in reality entered into an ethical evaluation of the social phenomena; and Durkheim does indeed elsewhere make use of a "conscience publique" in judging certain phenomena. It is presumably *Levy-Bruhl* who has most consistently maintained that sociology should *describe* solely the moral and juridical phenomena that is, what these are, but that one cannot give any *reason* for a moral or juridical rule that one *ought* to act in a certain manner, see in particular: La morale et la science des moeurs. But for the rest it is to be seen, even in the French sociologists of the most recent times, that although they emphasise observation, description of the social phenomena and their interrelation as the method of sociology, they cannot always themselves refrain from evaluations. *McDougal* emphasises (in: An Introduction to Social Psychology) strongly that strictly objective

psychological observation must be the foundation of the social sciences. Here this he also tries to account for those conditions for expressions of will which make it possible for the will to take the side of the weaker and more ideal motives, to lead these to victory over the strong and more primitive and common motives, and that harmonious system, in which the prevailing element is the consciousness of personality, in which an ideal of conduct is developed, and which is called a really firm character. He speaks, furthermore, of "higher forms of development of social life", and says that the development decisive for social evolution is the development of an ability for self-control and obedience to law, and that the instinct for rivalry is the driving power in a number of human efforts of the greatest importance to our culture —art, science and the like. Next imitation is an important factor in progress. Thus it will be seen that even in the form of description McDougal operates here with a large number of ideas of evaluation.

In a more recent school in the theory of knowledge, *logical positivism* or *empiricism*, also called the Vienna school, we encounter an extremely consistent position taken up in regard to the value problem. Belonging to this school, which was started in 1928 by *Moritz Schlick*, can be reckoned a number of authors such as *Carnap*, *Neurath*, *Frank*, in England especially *Ayer*, and in the Scandinavian countries especially *Eino Kaila* and *Jørgen Jørgensen*. Incidentally the purely theoretical view of cognition was much in evidence and to a certain extent they dominated the International Congress for the Unity of Science in 1936. See the report on this: Das Kausalproblem. Copenhagen 1937. Logical Positivism maintains that in principle it must be possible to verify every assertion by sense observation. An assertion must be either true or false, according to whether it can be thus verified or not; and every question concerning matters which cannot be verified at all through sense observation is meaningless, is a pseudo problem; and every proposition which cannot be subjected to this proof of experience is meaningless. Hence it follows that all metaphysical assertions, e. g., *Spinoza*'s of an All-substance, or of two substances, a material and spiritual one, of systems like the monad doctrine of *Leibniz*, *Hegel's* system, etc., are meaningless; and all metaphysical problems are pseudo problems as no verification by sense experience is possible of them. A searching analysis of language is necessary, for without thinking of it we often use words which on closer examination have no meaning, or which lead to problems which are only pseudo problems.

As will be seen this logical positivism or empiricism is by no means new. It has only gone a step further than the English critical theory of cognition, already maintained by *Locke* and *Hume*. According to the investigations of these pholosophers we ought practically in future to have been spared all metaphysical assertions and problems. Here we must remember, *inter alia* Locke's and Hume's devastating criticism of the idea of substance and of all metaphysical structures of reasoning connected with it. That European philosophy had a relapse to this unverified metaphysic, with *Fichte, Hegel, Schelling* and others, in the 19th century is due to *Kant's* building up a theoretical system of cognition, which may in itself also have been intended as a criticism of the metaphysical systems but which because Kant's own

construction of the theory of cognition was quite incapable of proof, gave the subsequent above-mentioned philosophers of the romantic period occasion to plunge into the vaguest airiest metaphysics.

On the aspects of logical positivism hitherto dealt with there must be general agreement, since this trend of thought here, as pointed out, is only a confirmation and continuation of the English empirical criticism of cognition. In the science of the present day there is no possibility of reviving the metaphysical systems, such as was the case in the beginning of the 19th century. The spirit of these systems is entirely foreign to the modern sciences of experience. All must agree with Locke and Hume and the logical positivism of the present day that no assertion can be accepted unless it can be verified by experience. Meanwhile we must examine what is actually meant by the expression "verification by experience".

If an assertion is to be characterised as true or false according to logical positivism it must be concerned with something that *is* such or such from experience, which is the verification establishing through sense observation that the fact with which the assertion is concerned, either really is what the assertion states or the contrary. Hence it follows, that all assertions which do not express that something *is*, but that something *"ought"* or "must" be, that one ought to or must act in a certain way, cannot be verified through sense observation, and are meaningless.

In the Scandinavian countries the Swedish philosopher, *Axel Hagerström* and his school (the Uppsala school) have already long since, before logical positivism arose, maintained the same as this school with regard to ethical and legal judgments of values. In a treatise written already in 1917: Till frågan om den objektive Rettens Begrep (To the question of the objective idea of law), Hagerstrom maintained that the "value", "right" and "duty", the fundamental ethical ideas, have no objective reality, but are solely expression of feeling without a logical meaning. All science aims solely at establishing that something *is*. Propositions stating that something ought to or must be are therefore scientifically meaningless. According to Hägerstrom the concepts of right and duty are imaginary concepts which presumably owe their origin to ideas in primitive law. It has happened, however, that the adherents of Hagerström's school have arrived at the same result as that to which the adherents of similar schools of value—nihilism have so often arrived in other countries: Even if they reject all ethical evaluations, the concepts of value, right and duty, nevertheless, in the further exposition of their ideas, they cannot exclude evaluations, but must often have recourse to them, though without being conscious of doing so. This applies, in fact, to Hägerström's talented followers, *Lundstedt* and *Olivecrona*.—In political economy too, in which the value —nihilistic tendency is very prominent at the present day, as it is in sociology, it is seen that it is not possible to keep quite clear of ethical evaluations. This is the case with the Swedish political economist, *Gunnar Myrdal*, in his interesting treatise: Science and Politics in National Economy.

Ahead of logical positivism, the Danish philosopher, *Herbert Iversen*, has also maintained an ethical nihilism and in an extremely consistent manner, from his whole standpoint of general theoretical knowledge.

In Scandinavian sociology also, ethical nihilism takes a prominent foremost place. This applies to *Westermarck, Geiger* and *Ranulf.* On the question of the method of sociology, a work of the most recent date is of special interest, namely Ranulf's book: Socialvidenskabelig Metodelære ("The method of sociology"), 1946. In principle Ranulf seems to maintain that the method of sociology must be purely descriptive, that is, must consist in a factual description and accounting for social phenomena and their interrelation, and in this respect he remonstrates emphatically with sociologists who put forward general assertions without sufficient verification from experience, op. cit. pp. 17—20, 130 seq. But, when he wants to find an empirical criterion of truth in view of a scepticism in the theory of knowledge with regard to the unreliability of human observation, he finds it in the splendid use of technics made by natural science, p. 3. But "technics" means: the applied, natural sciences, and they all rest upon evaluations. When Ranulf also says in this connection: "The success of socioscientific theories has often depended on their value for edification and propaganda, more that on their potential technical value", p. 34, cf. pp. 32—33, and thus seems to consider this latter concept an empirical criterion of truth, we must ask: what is meant here by "potential technical value?" If it is to be understood in the same sense as technical value in the applied natural sciences, he is now dealing with the estimates on which solutions are "useful" or "expedient" for mankind. In another, smaller treatise: Morality and the Community he says, at the beginning: "Science in principle can never do anything but substantiate what there is, and every conclusion from what there *is*, to what there *ought to be* is impossible", op. cit. p. 22, see also pp. 92—93, where he denies the possibility of giving a reason for morality, cf. pp. 94—95, 99—100. But on p. 103 (cf p. 112—13) he suddenly maintains that it is always "desirable" that "the community should protect itself as effectively as possible against crimes like murder, theft and rape!" Why? one must undeniably ask. Murder, theft, rape and the like are social facts, which sociology must describe, but also limit itself to describing. Judgments on the "desirability" or "undesirability" of these actions are ethical evaluations from which social science, according to Ranulf's own standpoint, must entirely refrain, as such evaluations are quite outside the task of science, of all real science, which has to verify and describe only that which "is", not what "ought" to be.

Th Geiger's value-nihilism is consistent, and he justly maintains that the scientifically necessary consequence is that all evaluations must be dissolved and the theoretical value-nihilism pass over to a practical value-nihilism; and he has justly criticised that some of Hagerstrom's adherents inconsestently maintain a purely *theoretical* value-nihilism, in other words, that this nihilism would not have the practical consequence that all evaluations in life would have to be given up, see Geiger's treatise: Debat med Uppsala om Moral og Ret. (1946).

On the method of sociology see further in Scandinavian literature also *Davidsohn:* Eksakt Sociologi. 1923. On *Durkheim* see *Chr. Petersen's* interesting treatise: Emile Durkheim. 1944. On Durkheim's ethical evaluations see especially this V. pp. 219 seq. On logical positivism see in English literature

also the penetrating treatise by *Granville L. Williams:* The Law Quarterly Review 1946. pp. 387—406.

The ethical Nihilism or value-nihilism takes for granted, (as will be seen) a certain *definition* of *science,* namely that *science* is only a *knowledge* of what *is,* the ascertaining of phenomena which actually exist up to the present moment. This is also the traditional and popular notion of science. But ethical nihilism has not at all taken upon itself the burden of examining scientifically, whether this traditional and popular definition of science is true or not and has therefore without any proof rejected every kind of human assertions which falls outside this definition, as for instance the assertion of value: that one ought to act in a certain way. As all other trend of thought from Socrates to the present time ethical nihilism has quite forgotten to raise the fundamental epistemological question: *what is science, what is* in the whole *human knowledge?*

This problem will therefore be the central question in the following investigation.

PART 2

WHAT IS SCIENCE?
WHAT IS HUMAN KNOWLEDGE?

CHAPTER 3

THE ANCIENT AND THE MODERN CONCEPTION OF NATURE

When scientific thought first came into existence it boldly considered itself capable of gaining knowledge of, of apprehending the world. There was indeed much in the previous evolution of man that might justify such daring expectations. Human thought had already in many respects supposed itself capable of knowing what the world was; it deemed itself acquainted with the nature of external things by noting what was called their properties: their various colours, forms, sizes, greater or lesser density etc. Using this knowledge in handicrafts, man had arrived at great practical results by experimenting with things, now in one way now in another, until they acquired other properties that the original ones, other colours, forms, sizes, and so forth. No wonder then that human thought finally became so daring as to believe that it could get behind the different properties of the various things. This desire to get *behind* the external, apparently numerous, different properties of things is in itself a remarkable mental phenomenon. Originally, as mentioned in Chapter 2, religion must no doubt have been a contributory factor. As we have seen, the primitive mind thought that just as man *altered* things with his hands so that they acquired other properties, thus also other living beings, the gods, were *behind* the *changes* occurring in things *in nature* (cf. above p. 15 seq.). But even when actual scientific thinking began, when *Thales* and the other Greek nature philosophers began to look for an explanation other than the religious one, the desire to get *behind* the *external things* and their properties persisted. Simultaneously with this desire, however, there appears a peculiar craving for intellectual *simplification*. Behind the attempts of Thales and the other nature philosphers to explain all phenomena as originating from one and the same primordial matter lies a desire to trace back to the same source of origin all the manifold

different things with their numerous different and extremely variable properties and to seek a unity in the multiplicity, whether the elementary principle which was thought to be the primordial source of the manifold things of the external world was supposed to be water, fire, or another element.

But already with this first natural philosophical or natural scientific thinking the *limitations* of human thought soon began to be evident. For whereas there was general agreement as to the practical knowledge of external things—that these had such and such properties and that by treating them with such and such implements certain results could be obtained, namely changes in the things,—as to the knowledge that attempted to penetrate behind the external things and their properties the geatest disagreement soon arose, one natural philosopher maintaining that one element, another that quite a different element was the primordial principle of the world. And while it was agreed with respect to external things for purely practical use that many were unchangeable and static, and that others were in motion or were changing, the philosophers who tried to get behind the external things, as already mentioned (pp. 17-18), held fundamentally different views, either that at its core the world was unchangeable, and that all the external manifold motions were merely a semblance, or quite the opposite view that everything in the world is in motion, and finally the compromise of Democritus, according to which the world is made up of innumearable small elements, atoms, which are immutable and eternal, while all the apparent multiplicity and all change only arise from the mixture and motions of the atoms.

Since the views of the various nature philosophers were contradictory, and none of them could be proved to be the sole correct one, it was only natural that a general scepticism should gradually come to prevail concerning them. *Socrates* passed the final judgment on the speculative nature systems and their assertions as to a world lying behind the external world and its things, or rather, behind our perception of it through the senses, when he said that we *know* nothing about it.

Here we already meet with two fundamentally different views of the concept of *knowledge*. One contention is that our senses do not give us a true knowledge of the world; beyond the manifold aspects of the universe revealed to us by our senses there is a unity, a single principle, an element or substance, and a single phenomenon, motion. Another contention is that we have in reality no knowledge of such a world beyond our perception through the senses.

With the Renaissance European thought again began to draw upon ancient Greek philosophy and its conception of nature; at the same time the discoveries enlarged the mental horizon; and the new thinking, coming with *Copernicus, Kepler,* and *Galileo,* far surpassed the achievements of the natural science of antiquity. Copernicus gave us a new picture of the world. About this picture, according to which it is the earth that revolves round the sun, there was this peculiarity that it differed considerably from that which was revealed to us by the immediate observation of our senses, and on which the ancient (Ptolemaic) conception was based. It is understandable, then, that the scepticism prevalent at the close of antiquity towards a conception of nature that goes beyond the external world should again recede into the background, and a new natural philosophical, speculative thinking should be initiated. The collective results of Copernicus, Kepler, and Galileo showed us a world of bodies in motion, from the largest to the smallest, and made clear the laws governing their motions. *Simplicity* in the conception of nature was the lodestar to the three great philosophers. But the simplest explanation of the universe and its phenomena is to conceive it—with a mathematical simplification—as consisting solely of *quantitative*—quantitatively determinable—bodies and their motions. It is also the easiest way of investigating the world, for in that case everything can be measured. Galileo's guiding principle was to measure everything that was measureable and to make measurable everything which was not. But if the things in nature are regarded simply as quantitatively measurable bodies and their likewise measurable motions, it must be possible to reduce all their qualitative differences, their colours, sounds, smells, and the like to an ultimate dependence on purely quantitative difference. Here *Galileo* adopted an idea which already *Democritus* had entered upon in antiquity; for since the whole multiplicity of the universe had, according to Democritus' great simplification, been reduced to atoms, indivisible and immutable, sense observation or the perception of the colours, sounds, etc. of things simply arose by atoms being ejected from the external objects and impinging on the sense organs. Thus what we call the *qualities* of things—in contrast with their quantity—that is to say, their colours, sounds, smell etc. turned out not to be due to the things in themselves but to the special *subjective* way in which our sense organs receive the particles coming from without, from the things. Thus the so-called *qualitative* properties of things were converted into *quantitative ones.* The new physiology would indeed seem to confirm *the mechanical*

quantitative conception of nature as far as the organism is concerned. Here especially it made a deep impression when Harvey (1578-1657) demonstrated the circulation of the blood in the organism, the heart by its contraction pumping the blood out into the body (like a mechanical pump).

The contemporary and succeeding philosophers, particularly *Descartes* and *Hobbes*, accepted the mechanical, quantitative conception of nature, throwing further light on it and giving fresh grounds for it. But at the same time they raised the question as to the consequences of this view for the *spiritual* world, as to whether the soul of man, its phenomena, emotions and ideas, could also be explained as motions of material, quantitatively determined parts, viz. of the human organism. *Descartes* (1596-1650) explains all material phenomena as objects extended in space and their motions, or as motion within parts of such objects. But he assumes that the human soul is an entity different from the body, from the objects, that it is a separate substance. It is true that he too had, independently, arrived at the result that sense-perception is merely movement within the various parts of the sense organs arising through the impact of numerous small particles of the external things on the sense organs. And *Harvey's* discovery made him regard the organism with its senses and nerves as a mechanism, in which action on the senses from without often quite mechanically, involuntarily evokes movements, along the nerve paths on the part of the organism, which were already by *Descartes* called reflex movements; and in his opinion the movements of animals could be explained entirely by such. But in man there is also *consciousness;* and in this we meet with a world entirely different from the external material world. The soul, according to Descartes, is an independent entity fundamentally different from the body. The principal quality of the external, material world is *extension*, but the main quality of the soul *is consciousness*. The soul, however, may influence the body; through the brain and the nerves it may actively direct the movements of the body.

Hobbes (1588-1679), on the other hand, contends as a general view of the world that all things, both the external things which we perceive by our senses and the world behind these things, are extended objects and their movements, that all change is the motion of larger or smaller bodies, and that the so-called psychic phenomena, too, are in reality only bodily movements. Perception by the senses is thus merely movement in the tiny particles of the sensing organ; and like Galilei and Descartes he asserts that the sensible qualities arise by the action of

external things on our sense organs. But in the same way, according to Hobbes, feeling and thinking are only physical movements in the heart or the brain. Altogether, science is merely concerned with what is physical; and the fundamental qualities of the body are extension and motion. Thus Hobbes is the first representative of the *consistent mechanical material conception of the world* which was to exert a great influence in the succeeding centuries, and indeed, prevail in wide fields of philosophy and general culture right up to the 19th and 20th centuries.

While there were thus to *Descartes* two substances in the world, matter or substance extended in space, and the soul, whose distinguishing feature was consciousness, there was to *Hobbes* only one substance in the world, the material or extended substance. Soon, however, a third view arose which dissociated itself from both these two. *Spinoza* contended that there was indeed only one substance (nature or God), but that it had two aspect or qualities, two attributes, namely mind and matter. To Spinoza nature is animated in all her stages and degrees, though to a different extent. And within the human organism likewise, every process has a bodily, extended aspect, and a mental aspect. But there are not two different processes, a bodily motion in the sense organs, nerves, or brain, and a mental one. They are two aspects of the same thing; there is only one process, which viewed from without looks like the movement of external, material parts of the body, and viewed from within is sensations, feelings, and thoughts.

Here, then, it was the same as in the philosophy of antiquity, the speculative systems arrived at mutually contradictory results in their ideas of the world lying behind the external world revealed to us by our senses; and as in Greek philosophy, this was bound to give rise to scepticism towards these different systems and their speculations on the inmost core of world. But in addition, the new natural science and the new philosophy after the Renaissance operated with fundamental concepts which neither in themselves nor viewed in reference to each other were sufficiently clear. Thus the contradictory views on the relation between the soul and the body used the concept "substance", the bodily substance and the mental substance, the former characterised by extent, the latter by consciousness or thought. But since, on the one hand, it was contended in the controversy about these two substances that they were separate and independent of each other, but that they could interact, while in other quarters it was maintained that in reality there was only one substance—as to the particular character of which the

enquirers disagreed—it would seem that an investigation of the *concept of substance* itself might be necessary. The specific branches of natural science such as physics, astronomy, physiology and the like, were solely concerned with substance extended in space, or matter, and the motions of material bodies. But at the same time already *Kepler* and *Galileo* began to operate with the concept of *power* as the cause of the motions of bodies. It would then be reasonable to ask how this concept should be understood, and what was the relation between the concept of *power* and the concept of *matter* or material substance. And there was all the more reason to do so since *Leibniz*, a considerable thinker, advanced the view that all matter, indeed all substance, is power; and in close connection herewith he contended that not only the sensible qualities, such as colours, sounds and the like, but also extension and motion are subjective, are merely a semblance to our senses.

After these conflicting opinions of the essential nature of the world, of its substance or substances, it was natural that as in antiquity men should turn with scepticism from *knowledge of the world* to *knowledge of the self*, to *self-criticism*. But this time self-knowledge took another direction than in antiquity. In antiquity it was *Socrates* who turned contemporary thought from a knowledge of the world to self-knowledge, and with him self-knowledge led on to ethics. Now, in the 17th and 18th centuries, self-knowledge turned towards a critical investigation of our intellect, its forms of activity and its ability to know the world. Already Bacon, Descartes, and Hobbes had begun to examine various aspects of the human understanding and to raise the problem of the correct scientific method. But it is only with *John Locke* that the great decisive change comes. Through self-observation he deliberately and systematically attempted to trace whence the chief notions of our conception of the world are derived, to show the origin of these notions ("a true history of the first beginnings of human knowledge") so as to test critically how much or how little knowledge our notions of the world give us about it. Hereunder he also wished to ascertain whence the comprehensive concepts which had given rise to so much dispute and doubt in the speculative philosophy of the 16th and 17th centuries, i. e. concepts such as substance, power, and the like were derived. In the preceding philosophy inquirers had also operated with notions which some considered innate, thus the concept of causality, and the logical and moral ideas or principles. But there were doubts as to whether this was right or whether these notions, too, were not derived from experience. Locke thought that there would be no end to the controversies

and doubts in philosophy until we learned through a critical self-analysis how the comprehensive speculative concepts and the so-called innate notions, altogether all our ideas about the world, arose in our minds. In other words, Locke initiated what we nowadays call a psychological inquiry into *the fundamental concepts of our understanding,* and on the basis hereof proceeded to test the validity of these concepts. It may therefore be truly said that only with Locke's chief work, "An Essay concerning Human Understanding", 1690, does critical epistemology begin. This work gives the first connected and systematic exposition of the fundamental problems of human knowledge on an empirico-psychological basis. Thus Locke is to epistemology what Socrates is to ethics. They both turn men's thought from the knowledge of nature to the knowledge of the self.

CHAPTER 4

THE CRITICAL THEORY OF KNOWLEDGE

Locke believed that by tracing our ideas to their origin he could learn which of these ideas were derived from, and corresponded to *reality*, to nature as it actually is; or, to quote Locke's own words, ' which of them are "real and true". His successors, *Berkeley* and *Hume*, carried on this psychological method of seeking the origin of our ideas. *Kant*, too, attempted — in a more definite and systematic way than his predecessors — to find out which elements of our knowledge were subjective, due to the special structure of our mind, and which came from without. The 19th century was the century of the *specialisation of science*. A huge body of experience was gained from a variety of fields, both in the exact and the liberal sciences, and a number of important discoveries and inventions were made. But epistemological criticism was not the strong point of the century. Towards its close and in the 20th century a series of new investigations into the theory of knowledge, more or less connected with the new natural sciences, begin to appear, particularly by thinkers such as *Ernst Mach*, *Kroman*, *Meyerson*, *Bertrand Russell*, and *Herbert Iversen*.

As I have pointed out elsewhere, Locke is the intellectual father of the 18th century, the age of criticism (Book 1, 13-14). By his criticism of hereditary absolutism and his assertion of democracy and constitutional liberty, he became a guide to the philosophers of the 18th century, to Montesquieu, Voltaire, and Rousseau, and to the new communities and constitutions that came into existence in the 18th and 19th centuries. In the domain of religion he was the spiritual father of rationalism. If, altogether, the 18th century became the century of reason, subjecting to criticism all inherited institutions and ideas, from constitutional forms to religion. Locke has his great share in this. But he, and after him the thinkers of the 18th century, made their greatest critical contribution

when they also subjected the human understanding itself, the faculty of the human mind to think, to criticism.

To Locke what we call experience was equivalent to the *sensations* or in Lockes own terminology "ideas of senses"; and these are indeed what we at once, directly, understand by experience, as soon as we begin to think about it. The sensations are the basic elements of all knowledge; in Locke's opinion they reproduce *reality*. Copies of the sensations are retained in the mind as ideas in our memory. Through the sensations and the ideas derived from them, our emotions, moods, and passions are awakened. When these inner sensations are past, ideas of them also linger as faint copies in our consciousness, as remembrances.

To Locke and his successors the sensations are the materials of experience which our understanding then actively elaborates, combining them to the complexes of sensations we call things, arranging them in *time* and *space*, noting their relations to each other, as for instance the *resemblance* or *difference* of two sensations (or sensation complexes), their relation as *cause* and *effect*, their *identity*, that is to say, the constant resemblance of sensation complexes (things) down through time (the resemblance of the thing to itself). All ideas concerning such relations between the sensations go beyond these sensations themselves and are inventions of our active mind. As already pointed out, we only experience external things as complexes of sensations. An external substance lying behind and "sustaining" these complexes and causing them to appear in our minds, that is to say, a thing in itself, we never observe with our senses. Already Locke strongly emphasised this and assumed a very critical attitude towards the idea of an external substance; and Berkeley and Hume entirely rejected the idea of an external world, the material substance. Hume also rejected the idea of an immaterial soul substance.

The relation between *cause* and *effect* was, as Hume showed, only a succession of two sensations—the fire as the cause, the melting of the lead as the effect—any "inner" connection or causation between these

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Kant has given a brief, pertinent characterisation of his own age, the 18th century, in the following passage: "Our age is the true age of criticism, to which everything must submit. Religion by its sacredness, and legislation by its majesty usually seek to elude it. But thus they direct just suspicion to themselves and cannot claim that undisguised respect which reason only accords to those that have been able to undergo its free and public test", Kant IV 8 note.

sensations lies not in these, not in the objects, but in us. A "necessary" connection between cause and effect is due to an inner subjective feeling in ourselves, arising out of custom and belief; through numerous constant successions of the same cause and effect we at last acquire the belief that the same effect, i. e. sensation, will appear when we again see the cause, the first sensation we had in the successions. *Kant*, who inconsistently assumed an external world, das Ding an sich, unlike Hume thought that the law of causality—which in his formulation runs: every change has a cause—did not arise out of pure experience, out of successive sensations, but was an a priori, necessary form of all experience, due to the structure of our apprehending reason. Further he thought that our conception of resemblance and difference (the concept of size) and of space and time were also a priori forms of the mind (time and space being forms of perception, causation and size forms of understanding). To *Hume* also time and space were not ideas derived from the sensations themselves, but from that "order or manner" in which the sensations appear; and the concept of size, and, altogether, our apprehension of resemblance and difference, were, as already stated, both to Hume and Locke, not ideas derived from the sensations or their complexes (things) but from relations of ideas, which were "inventions of our mind". But, unlike Kant, Locke and Hume did not say that these ideas of relations between sensations, time and space, size and causation, were universal forms, necessary if our mind were to have any experience at all. And notably as to causation Hume expressly denied that this relation gave us any experience in Kant's sense of a generally valid absolutely necessary relation. Experience, observation through the senses, only gives us successions of sensations; but from ever so many successions of causes and effects we cannot deduce any generally valid absolutely necessary proposition that a change, an effect, always must have a cause.

Thus, as will be seen, the new theory of knowledge in the 18th century and its critical examination of the power of our mind to know the universe arrived at the result that we have no power to know the world surrounding us. Even those who like Locke and Kant assumed a "Ding an sich" admitted that its real nature, the inner structure of things and the connection between their properties, is entirely unknown to us. But as shown by Berkeley and Hume, even the presupposition of an external

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As to Lockes, Berkeleys and Humes theory of knowledge. I haven given analysés in detail in book I, pp. 27-164.

world could not, on Locke's own assumption, be consistently maintained; and the same applied to Kant's assumption. The distinction between an external and an internal world disappeared, and everything in the world is therefore ultimately, only our own experiences, sensations, ideas, feelings of pleasure and pain. And in that respect it makes no difference whether we regard the things as complexes which we make up with the sensations as elements—as Locke and his successors did—or whether we regard the things as impressions of a general whole which we later differentiate into different sensations or qualities —according to the more recent "Gestalt"-psychology. In both cases we cannot go beyond ourselves, our sense impressions; we do not arrive at any proof of the existence of external things.

The epistemology of the 19th and 20th centuries, which has not made any particularly new independent contribution, has confirmed the negative results of the four great epistemologists. *Stuart Mill*, who himself tries to evade the latest epistemological problems and takes the things of the surrounding world as his point of departure, frankly admits with Berkeley and Hume that, ultimately, things are only possibilities of future constant complexes of our sensations. *Ernst Mach* points out that the distinction between an internal and an external world must be given up as a fiction which only leads to unfruitful problems, such as the problem of the relation between mind and matter; and altogether Mach assumes, in accordance with Berkeley and Hume, that all that exists is our sensations, ideas, feelings, and the like, in short, experiences in ourselves; that what we call external things are only relatively stable sensation complexes, and that our whole understanding aims at bringing about as easily surveyable and simplified conceptions of wholes as possible of all the manifold sensations and ideas. *Kroman* acknowledges that the law of causality, the principle of the necessary causative relation, cannot be proved but is a postulate. *Bertrand Russell* owns that Berkeley's and Hume's negativism is so strongly supported that, epistemologically, it cannot be disproved. And *Herbert Iversen* fully endorses Berkeley's and Hume's theory of knowledge; he justly points out that this is the irrefutable strict consequence of the presuppositions on which Locke's and Kant's and all later theory of knowledge is based. Everything in the world is mental experience, our own experience at stated times, from the remotest stars of the universe—and the whole universe —to our neighbour's house; and from Alexander's expedition to India to the last European war and the rain falling at this moment. Strictly speaking there is only my mental experience at this moment, for Alexan-

der's expedition as well as the rain that ceased a minute ago are ultimately only my idea at this moment of that expedition and that rain. Therefore, as Iversen points out, as the last consequence of Berkeley's and Hume's irrefutable theory of knowledge, the concept of time as well as the concepts of the external world, space, and the relation of cause and effect, will vanish. It is actually the same as that which Russell expresses when he says that it is possible, and cannot be disproved, that the whole world was created a few minutes ago. If thus my experience at this moment remains the only reality, the "actual" thing, then, as Iversen also admits, all knowledge ceases to exist.

Now in what way, by what method, has the theory of knowledge arrived at these results?

The foundation of all epistemology thus far, from Locke down to our day, has been *self-knowledge*. The knowledge of nature could not be used as the foundation, for the fundamental concepts of natural science, space and time, the concept of causality and the like were the very concepts to be subjected to criticism. Self-knowledge, after Locke's time, became the foundation of the criticism of knowledge, as in the time of Socrates it became the foundation of ethics. But in both these central human domains the investigation on this basis has, as already shown, recently ended quite negatively; no proof can be given of the truth of scientific knowledge; and no grounds can be given for the ethical values. Self-knowledge terminates in the single mental experience of the particular moment; and this experience cannot lead to any knowledge of a world outside ourselves, any more than it can lead to any evaluation of the experience, to any ethical judgment concerning quality. These two results in the central domain of human life are intimately connected. Numerous efforts have been made in ethics, from Socrates up to the present day, to prove that ethical evaluation is founded on apprehension, on knowledge. Therefore, as I began by pointing out, we had to ascertain first what knowledge, what scientific apprehension was, and whether any grounds can be given for the truth of it. But since modern epistemology has thus, by going deeper and deeper into the problem of knowledge, arrived at the result that no grounds or proof whatever can be given of what we call knowledge and scientific apprehension, the question of giving any grounds for ethics falls away, if only for that reason.

As far as I can see, however, a problem here arises which is the most fundamental of all and which can be expressed briefly as follows:

Since epistemology, as we have seen, has consistently arrived at the result, negative to all knowledge and scientific cognition or thinking, that we can give no proof or grounds whatever of this cognition or thinking, then even this result, destructive to all science as it is, has been attained by a *process of thinking*. But what kind of thinking is this process; in what does is consist, and is it unassailable? The epistemologists both in the 18th, the 19th, and the 20th century, forgot to subject their own epistemological process of thought to an investigation and critical test. We must, however, find a way to a criticism of criticism. As long as this has not been done, it will, in my opinion, be impossible to find a solution to the problem of knowledge and thus also to the ethical problem. Only when that process of thought has been revealed, by which Locke, Berkeley, Hume, and Kant, and their successors in our day arrived at their critical results, will there be a possibility of elucidating the relation between psychology and epistemology and the method of epistemology itself.

On epistemology in the 19th and 20th centuries, especially on the investigations of Mach, Kromann, Meyerson, Russell, and Iversen, see book I, pp. 258-72, 263-404. On Whiteheads and Bergsons philosophy see pp. 104-412.

CHAPTER 5

CRITICISM OF THE CRITICISM OF KNOWLEDGE

If now we investigate more closely this process of thinking and try to find out what ideas the epistemologists make use of in their own critical thinking, the strange fact appears, as I shall prove later, that they all, both Locke, Berkeley, Hume, and Kant in the 18th century, and the epistemologists in the 19th and 20th centuries, without being aware of it, in their very criticism of our knowledge, employ and base their reasoning on the very same fundamental ideas which in their own investigations they end by declaring to be subjective or inapplicable to the field in which they apply them themselves.

To begin with the beginning, with Locke, the founder of modern epistemology, it may be stated that as the first result of the self-knowledge, the psychological self-observation on which he bases his criticism, he establishes as something undeniable that, first, sensations arise in our mind, and that all our ideas directly or indirectly are derived from, can be traced back to the sensations, and for this reason he challenges the view of the innate ideas.

Here Locke does not see that during this process of thinking he unconsciously employs, and bases his whole line of reasoning on no less than 3 of those basic ideas which he later himself brands as highly complex ideas and criticises as knowledge, namely time, likeness and difference, and causal connection. For what happens during Locke's own process of thought is the following: first he *compares* the sensations he finds in his consciousness and those impresions of sensations he retains in his memory, what we call ideas, and notes that between these sensations and ideas there is both *likeness*—that is to say, in their content (my sensation of light today, and my idea of it tomorrow)—and *difference* (the idea is not so clear, less vivid than the sensations), further that the sensations precede the ideas in time, and that these latter "are derived from" the sensations, that is to say, that there is *a causal con-*

nection between these two psychic phenomena. Through the two large groups: ideas of sensation, and all other "internal" experiences, ideas of reflection, he has then made use of general ideas. When Locke further says that we retain the sensations, or rather copies of them, in our memory as what we now call ideas, and that we combine or join together simple sensations and ideas into ideas of things, substances, then all this "retention", and "combination" and "joining together" is simply *causal connection*, and Locke even derives these causal explanations from the external physical world and thus unconsciously implies that just as we preserve external things and join or combine them to larger wholes, our mind treats psychic phenomena in the same way.

Thus Locke's true history of the primary origin of all human knowledge from the sensations is on the whole a discrimination and comparison between psychic phenomena and a causal explanation of their origin in time. But this, in fact, means that self-knowledge, cognitive psychology, bases all its thinking, its explanations, and its criticism of knowledge on the same implications, the same basic ideas, as are employed by and underlie natural science and all other brances of science. These fundamental ideas: the relation of likeness and difference between sensations, things, general ideas of things, time, and the relation between cause and effect are alle complex ideas of relation, that is to say, inventions of our mind. It follows that self-knowledge, psychological self-observation, gives no truer picture of the real mental world, hereunder cognition, than natural science gives of the real nature of the physical world.

Locke's explanation of our idea of *time*, as a complex idea *arising* from the fact that the constant *change* or *alternation* of various sense impressions in our mind *produces* the consciousness of succession and duration (which are the basic elements in our idea of time) is a thorough causal explanation too. The same applies to Locke's explanation of the origin of our ideas of *space* and of *force* (Locke I 153 ff., 219 ff., 242 ff.).

Berkeley gives a profound explanation of the *origin* of our *conception of space* as based on the fact that our mind *combines* certain sets of sensations (visual sensations, sounds), with other sets of sensations (sensations of motion and touch) and draws a conclusion, supported by the *constant repetition* of the following of the latter upon the former, from the sight of coloured surfaces to distance (Berkeley 35 ff., 52 ff.). But all this explanation is an ingenious and highly complex *causal explanation*, with several series of causes and effects, a causal explanation of mental phenomena at least just as complex as those explanations of physical

phenomena which we encounter in modern chemistry and physics. But according to Berkeley's own view expressed in another passage, a causal connection affords no deeper explanation but merely shows us purely external series of two consecutive sensations which have hitherto proved constant, but of whose appearance in the future we know nothing; the causal connection or the laws of nature are therefore quite incapable of proof.

And in his psychological observations *Hume*, too, without being aware of it, constantly makes use of the same fundamental concepts of which he proves the subjectivity in his investigation. By distinguishing and comparing he succeeds in dividing all the mental phenomena into larger groups, especially sensations and ideas. These are in reality two comprehensive general ideas. As to the relation between these two he now quite simply establishes as a quite *general law* that all simple ideas are *derived* from sensations, are a kind of copies, fainter reflections, of these which are retained in memory, and that the sensations always in *time* precede the ideas, Hume I 311 ff. ("all our simple ideas in their first appearance are derived from simple impressions which are correspondent to them", Hume I 314 and (as the next main law) "our simple impressions are *prior* to their correspondent ideas", Hume I 316-17. My italics). The whole of this "derivation", however, is nothing but a mental *causal connection*, which is, moreover, made into a general law of nature. But according to Hume's own thorough investigation of the problem of causality later on in his exposition it turns out that any such general necessary causal explanation is ultimately nothing but a subjective belief within ourselves which is incapable of proof.

Even Hume's psychological explanation of the origin of the belief in causality is a thorough psychic causal explanation; a present, vivid sensation (the cause) brings or *carries along* with it an idea of a sensation previously experienced (the effect) which has often been associated with the aforementioned sensation. Here too Hume uses the word *produce*. For he says that the constant repetition of the sequence cause and effect has "produced" nothing new in these objects, Hume I 458-59. But "produce" like "derive" is a word typical of a causal connection. The same applies to words such as combine and carry with it. Hume also says quite generally that the relation between cause and effect "*arises* entirely from experience". The word italisized by me shows quite plainly that here Hume himself operates quite confidently with the relation of causality.

Hume's explanation of extension as arising from the fact that our

mind joins together into a whole the numerous small unextended coloured points (Hume I 345 ff.), is likewise a causal explanation.

Finally it must be mentioned in this connection that *Locke* constantly presupposes an external world or substance which is said to be the *cause* of the sensations, though he himself in his investigation of the idea of an external world or substance shows that this is one of the complex ideas which are a subjective invention of our own mind. And even *Hume* cannot entirely rid himself of this notion which otherwise he ruthlessly brands as incapable of proof. For, as I have pointed out elsewhere, he at last says in his inquiry into the problem of causality that our idea of a real causality, i. e. a necessary general connection betwen two objects, cause an effect, in the last resort is nothing but an "*internal* impression of the mind" (my italics). The necessity which is the actual factor in all causality, is something that only exists in us, "in the mind, not in the objects". Hume I 460. Here Hume operates with "external and internal objects", with "spirit" and "body", that is to say, with the distinction between an external and an internal world, which he elsewhere decidedly rejects. Hume I 234, 478-505, 516-33.

For the whole of mental life Hume finds a general law, namely that the human mind has the power to "*unite*" sensations and ideas. But "to unite" is a term from a causal relation, moreover derived from the "external world". Hume even compares this phenomenon, that ideas constantly unite with or attract one another, to the attraction that takes place between objects in the physical world.

Against Kant we cannot raise the same objection as against the English empiricists, namely that he employs ideas and principles in his theory of knowledge, of which he himself later denies the validity. He entirely refuses to employ empirical psychology in the theory of knowledge like Locke, Berkeley, and Hume. Empirical psychology and empirical natural science are both applied philosophy. Pure philosophy, on the other hand, contains the a priori principles with which, it is true, the empirical sciences are associated, but with which they must not be confused. "Hence empirical psychology must be entirely banished from metaphysics", Kant III 548 ff. The theory of knowledge should be purely a priori in its method, should precede all experience, be based on "eternal, immutable" a priori laws. If now we examine closely this a priori transcendental theory of knowledge of Kant's which is to be independent of all experience, including psychological experience, we note that he first draws a distinction between the sensations as matter and the forms of our mind, which is an insistence upon general differences and likenes-

ses between these two groups of psychical phenomena, and that he contends that the forms of our mind elaborate the sensations, as matter, ("den rohen Stoff sinnlicher Empfindungen bearbeitet"), which in an insistence upon a phychic causal relation. Thus like the English empiricists, he employs psychological explanations of likeness, difference, and causality; and if Hume had lived to see "Kritik der reinen Vernunft" in 1781, he would have been justified in saying to Kant, "You blame us for employing empirical psychology in the theory of knowledge, but what have you done yourself? Like ourselves you point out psychical differences and likeness, in the group of the sensations and in the group of the forms, which we call relations of ideas, order or manner, or the like: like ourselves you note the psychical causal relation between these two groups of phenomena," and so forth. To this Kant would only be able to reply, "Yes, but unlike you I regard the forms, our mind's ordering of the phenomena in likenesses and differences, causal relations, space and time, as eternal, immutable, fundamental ideas and principles, valid for all phenomena, psychical and physical." Since Kant in his theory of knowledge employs these forms everywhere, and they only apply to the phenomena, not to the thing in itself, his theory of knowledge, which according to eternal immutable principles should furnish absolutely sure knowledge, still does not give the absolute truth, knowledge of the world in itself, neither of the psychical nor the physical world. And to *what* does he apply these eternal forms in his criticism of pure reason? The reply must be to the sensations, time, space, and so forth, altogether of course to psychical phenomena. These eternal forms, the apprehension of likenesses and differences and causal relations cannot float freely in the air; they must always have something to work on, either external natural phenomena or internal conditions. There remains only Kant's contention that these eternal forms, principles, are a priori, independent of experience, since they are not derived from the surrounding world, from our impressions of this, but from the structure af our own mind, and that his theory concerning these pure forms, therefore, is also a priori, transcends experience, being derived from us, not from the sense impressions of the surrounding world which, on the contrary, is eternally, validly governed by these forms. But it shows that Kant's a priori, transcendental theory of knowledge is based on a circular conclusion, taking that for granted which it proposed to prove. For that the sensations, the materials of experience, are derived from the surrounding world and that the forms—space, time likeness—difference, the principle of causation and the like — are derived ex-

clusively from the structure of our mind is a contention incapable of proof. But if it cannot be proved that the forms are derived entirely from our mind and therefore inevitably mark all our experience, all our sense impressions of the surrounding world, we have no certainty whatever that the forms are eternal, valid even for the world of phenomena. And consequently Kant's own so-called pure theory of knowledge also is not a priori, eternally valid. His theory hereof, and with it his whole theory of knowledge are postulates.

Locke, Berkeley, Hume, and Kant—if we diregard his postulates—have this view in common that our mind *elaborates* the sensations as a *material*. The mind *retains, unites*, and *combines* the sensations into larger units, into time and space, things, likenesses and differences, causal connection. About this elaborating activity the English empiricists use such terms as composition, connexion, uniting; Kant especially uses the word synthesis. Experience, as Kant has it, is a "product" which our understanding "produces", in the course of its elaboration of the material, the sensations.

But the whole of this epistemological conception of our understanding or cognition as an *elaboration*, a *shaping*, a *production*, a combination or composition of a *material*, is entirely a *causal explanation* which even takes its expressions from a well-known *causation* in the *external world*, namely the *craftsman's working, shaping assembling* of a material or materials into more composite objects. Thus these epistemologists transfer the image of an external mechanical causation to the psychic phenomena to explain psychical processes. Hence on this main point of their theory of knowledge the English empiricists use forms of cognition, ideas of relations, viz. causality—even in a form derived from the external world—and the relation of likeness and difference, of which they themselves on their own assumptions, especially after Hume's consistent inquiry, must deny the validity. And Kant bases the same fundamental view on the same causal relation and relation of likeness and difference; he regards these relations or forms as eternally valid because in his opinion they lie entirely in the structure of our mind, but in so doing he takes for granted that which he set out to prove.

The theory of knowledge in the 19th and 20th centuries has continued this treatment of the problem of knowledge: either unconsciously employing for the explanation of our process of cognition the fundamental ideas and propositions which after such an explanation and inquiry are rejected as invalid, or making use of cirkular conclusions. Thus,

Ernst Mach explains our cognition as an "adaptation", partly an adaptation of our thoughts to the sensations, and partly an adjustment of the latter to comprehensive concepts by which we arrange, group, the material of the multiple sensations under larger units. And already prior to this comprehensive grouping the sensations appear in "complexes", element-complexes, the more lasting of which we call things. But all this *adaptation, grouping, assembling* of elements in complexes is a causal explanation; and the idea of adaptation is even derived from a highly complex and partly disputed causal connection in the external world, namely the adaptation of plants and animals to their natural environment. But according to Mach's own investigations the very distinction between an external and a internal world is merely a fiction; and the causal relation is merely some sensations in constant succession: the sensations, the actual source of our cognition, *never* show us an internal necessary connection. Finally the idea of the self as an inner psychical unity is without reality as also all thought concerning an external world. But according to this the adaptation of our mind to something else, to the surroundings or the sensations,or our adapation or elaboration of these as an internal causal relation, is without reality. Finally it should be noted that Mach's entire psychology of knowledge is based on distinctions between and groupings of the mental phenomena, especially between the sensations on the one hand and the ordering, collecting, adapting activities of our mind on the other hand. However, all such distinctions and groupings depend on relations of likeness and difference between psychic phenomena; but such relations have also been created by the synthetic, ordering activity of our mind, not by the sensations in themselves, the real source of knowledge. —Like many other epistemologists since the time of Locke, *Herbert Iversen* too regards psychology as the only basis of a deeper-going criticism of our knowledge. But he too does not see that in his own epistemologico-psychological inquiry he is operating with basic ideas or forms of cognition that he himself after investigation regards as incapable of proof. Descriptive psychology, which Iversen regards as the most penetrative scientific inquiry, cannot operate at all, makes no headway whatever, without the recognition of resemblance and difference between the psychic phenomena. Iversen could never have arrived at his own basic idea: the *mental state at a particular moment*, without drawing distinctions and comparisons between series of mental conditions; and it is only after these experiences, which this distinguishing and comparing between the dissimilar or similar mental state is, that

without being aware of it, he in fact forms nothing less than a general idea, the general concept "mental state". In the first part of his inquiry Iversen still operates with several mental states and here enters closely into the psychic phenomenon "recognition", that is to say, precisely the consciousness of resemblance between a present mental condition, e. g. a sense impression, and a sense impression previously experienced (Iversen p. 32 seq.). With respect to two such states A and B, however, he points out that "A with its pecularities has vanished when B is experienced, and comparison between two (or more) mental states is of course, strictly speaking, impossible", and is merely a careless popular expression. He does not here realise that without this comparison between several mental states he would never have arrived at his basic idea, the mental situation at a particular moment. Finally, when he comes to the result that only a single mental state exists and that *time*, therefore, *disappears*, he recognises at the same time that the mental condition may harbour reminiscenses of a previous situation (ultra-present quality). But a recognition of this is simply impossible without drawing a comparison and a distinction between two mental conditions, namely between a condition which harbours such a reminiscence and one which does not. But even if we would disregard the inconsistency which a state with a reminiscence of an earlier state is, viewed from the angle of a single experience, Iversen would not be able to apprehend this experience, nay he could not even experience it except in its difference from an immediately preceding experience, against the background of which it appears and without which it cannot be conceived at all. Having all the time only one and the same experience is the same as having no experience at all. We are taught this by the simplest descriptive psychology: this was pointed out already by Hobbes and Locke. It is inseparably bound up with cognition and experience, even of the simplest kind, that of receiving an impression, experiencing a state which is *different* from another. The opposite is unconsciousness, that is to say, neither cognition nor experience. Iversen's single experience, the most "desolate", most "lonely" place, *cannot* be desolate and lonely at all, for this so-called single experience simply does not come into existence except in connection with other, previous experiences, which are different from or in certain particulars similar to the present experience. It is perhaps too much to say that as soon as we become aware of any experience at all, even our experience now, it has already passed away. But this at any rate applies to numerous experiences. Iversen would not have been able to write a line of his book, or

have thought one thought in it without at any rate becoming aware of his single experience. But that very awareness would be psychologically impossible to him without the consciousness of the *difference* or *resemblance* of this experience to earlier experiences.

It will be seen, then, that even with the most consistent adherence to the psychology of knowledge and theory of knowledge which starts with Locke and proceeds by way of Hume and Kant to the most recent researches of the 19th and 20th centuries, philosophers in stating the grounds for the most negative standpoint, denial of all knowledge, cannot help unconsciously employing that very knowledge of difference and likeness, even of general ideas, of which they themselves deny the possibility.

As already shown, the more recent theory of knowledge, from as far back as the 18th and down to the 20th century, based its criticism of our knowledge on self-knowledge, (either on Locke's, Hume's and other inquirers' psychological, or Kant's logical, transcendental "Selbsterkenntnis"). Their idea was no doubt that self-knowledge affords the surest knowledge, since what we know best is ourselves, our own mind (cf. also Kant IV 8 and 11). But at the same time associated with this there was no doubt a rather vague notion that self-observation, consideration of our own sensations, ideas, and the like is a quite simple, direct, and easy observation; that this does not require the application of the composite fundamental concepts and principles on which our knowledge of nature is based; and that therefore the simple, easy self-observation must be the very way to throw light on and analyse these fundamental concepts and principles. This view is due to a delusion. As I have shown above, the epistemologists cannot move one step in their self-observation and in their criticism of our konwledge and its fundamental ideas based on this, without quite unconsciously employing and taking their stand on the very same fundamental ideas: time and space, likeness and difference, and causal relation, which they either—like the English empiricists and such philosophers as Mach and Iversen—criticise and deny the validity of, or to which like Kant

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The idea of space is the only idea which the psychology of knowledge and the theory of knowledge strictly speaking *need* not use, since they are exclusively concerned with the description and explanation of inner psychic conditions. But it is worth noting that epistemologists have made use of this very idea in explaining psychic phenomena, as with an unconscious analogy from the external world they speak of the intellect "forming" the "matter" constituted by the sensations.

they ascribe only a subjective validity a priori but without proof. And of course in that respect it makes no difference whether these concepts and propositions, as in the psychology of knowledge and the theory of knowledge, are employed to explain *psychical* phenomena or whether, as in natural science, they are used to explain *physical* phenomena.

But when epistemologists thus, whitout being aware of it, employ time and space, likeness and difference, and causality in their inquiry, to prove that these very same fundamental concepts do not give us any valid knowledge or only a subjective, a priori knowledge without proof — they have not observed that they have in fact cut off the branch on which they were perching. Unconsciously they have themselves undermined the whole foundation on which they have based their criticism of our knowledge.

This means no less than that all the results at which modern epistemology, from Locke, Berkeley, Hume, and Kant to the thinkers of the 20th century, has arrived are *incapable of proof*. If the scientific and general human means of knowing, time, space, likeness and difference, and causality do not in natural science give any knowledge of the external world, neither can they give any knowledge of the internal world, our mind. The opposite contention cannot, at any rate, be proved.

About the whole theory of knowledge hitherto extant it must then be said that either it directly contradicts itself or it goes round and round in a circle and gives no proof of its contentions; its results, therefore, have no foundation. The line of thought is related to the well known proof: that A always speaks the truth is proved by A saying so himself. This does not indeed prove that A speaks the truth, but neither has it been proved that he does not. That is to say, that the argument is at a deadlock. When Locke, Berkeley, and Hume and their consistent successors in the 19th and 20th centuries contend that our concepts and propositions concerning time, space, likeness and difference, and causality give us no knowledge of the world, but are merely subjective forms of our own mind, and to prove this employ the very same forms, this argumentation too is at a deadlock. Kant, it is true, regards the same subjective forms as absolutely valid for the world of phenomena, precisely because they are subjective, but since this view is incapable of proof, no progress whatever has been made in spite of all his criticism of knowledge.

Since thus all the contentions and results at which the epistemologists have thus far arrived are incapable of proof, and they have not in fact been able to prove either that human knowledge and its fundamental

ideas do not give us a true knowledge of reality or that they do so and the whole of the criticism of knowledge has thus so far been a marking of time, there must be something wrong about the very starting point and the *method* of all previous theory of knowledge.

On a close inspection it is in fact seen that the greatest vagueness and uncertainty prevail in the question as to what method the theory of knowledge should adopt. As already stated, two contradictory trends assert themselves here, the empirical and the a priori. While, as shown above, the great epistemologists of the 18th century agree on several points, there is a great contrast between Locke, Berkeley, and Hume on the one hand, and Kant on the other, precisely as to the method of epistemology. The method of the three former thinkers was empirical, as they based their theory of knowledge on an empirical science, psychology. Kant on the other hand, as already pointed out, expressly refuses to base his theory on empirical psychology, for this psychology is nothing but applied philosophy, which presupposes pure philosophy on a priori principles. Since in Kant's opinion all experience contains a priori elements, a priori forms of understanding, which are the *conditions* essential to having any experience at all, the philosopher must first inquire into these a priori forms of understanding, die reine Vernunft, to which all experience conforms; but this inquiry cannot then itself be of an empirico-psychological kind, but must take place according to eternal, immutable laws, and must give an eternally complete view of these pure elements of understanding which are quite independent of experience, cf. Kant IV 9 seq., 69 seq,, III 9 seq., 547 seq., book I 151-52. But the whole of this a priori theory of knowledge maintained by Kant, which transcends all experience, is, as shown above, based on the very thing which he was to have proved first, namely the construction: matter—form, of which the latter is in ourselves. All Kant's critique, therefore, his entire analysis or "Zergliederung" of our a priori knowledge is in the last instance merely psychology, Kant's own self-observation of the notions and concepts which in his opinion might be called a priori,—space, time, size, causality—in contrast with sensations and ideas such as colour, sound, taste and the like.

But even though it may thus presumably be acknowledged that Kant's a priori method is untenable in so far as it is supposed to be independent of all empirical psychology, it must on the other hand be admitted that there is also a deep epistemological weakness in Locke, Berkeley, and Hume, when they propose to base the theory of knowledge on empirical psychology without any close examination of the latter as a foundation.

They have not subjected the fundamental ideas which they apply in their own empirico-psychological method to any close criticism. There must be a line of demarcation between psychology and the theory of knowledge; but where this line should be drawn, that is the problem. This problem was felt by Kant when he declared that he would not base his criticism of our cognition on empirical psychology or on any other empirical science, but proposed to offer a criticism of pure reason "nach Principien a priori." Kant, however, has thrown himself into the arms of an a priori reasoning on the epistemological problems which was quite incapable of proof, and at least just as uncritical as Locke's, Berkeley's and Hume's empirico-psychological reasoning on these problems, and in contrast with this empirico-psychological method had the great weakness that it re-opened the door to the most unlimited philosophical speculation.

To this very day this fundamental epistemological problem, the problem as to method, has not been solved. And as far as I can see that is the reason why, in the 19th and 20th centuries too, fundamentally different schools of thought still stand opposed in a drawn battle on the theory of knowledge and thus on philosophy in general, with the result that the basic problem of ethics remains unsolved too. Here we find the deep reason why the romantic, speculative philosophy could oust and replace the epistemological school of the 18th century, the reason why this speculation was again later in the 19th century superseded by empirical psychology and epistemology, and why in recent times, at the close of the 19th and in the 20th century, a priori and speculative schools such as neo-Kantism and neo-Hegelianism have reappeared and reveal the limitations of the former empirical theory of knowledge.

To attain clarity in this fundamental problem as to the method of epistemology it is in my opinion necessary first (1) to ascertain and throw light on the basic elements of human knowledge and their close relation to each other through an empirico-psychological inquiry. But at the same time it is necessary (2) to learn by self-criticism, and thus establish what elements of knowledge or capacities for knowledge we utilise during this very same psychological process of inquiry.

CHAPTER 6

THE BASIC ELEMENTS OF HUMAN KNOWLEDGE AND THEIR INTERRELATION.

That branch of philosophy which began with Locke's critical psychology is often called the theory of knowledge or epistemology, but sometimes also metaphysics. The term "metaphysics" is, however, often employed in another sense, namely: the speculative abstract philosophy which was especially dominating in the 16th and the 17th century, as for instance Spinoza's and Leibniz' philosophical systems. In the following the terms "theory of knowledge" and "epistemology" will be used synonymously. This science should in my opinion be the *general part* of all specialised sciences. It should therefore in the first place critically examine the *fundamental concepts* with which all specialised sciences operate in their investigations, and on which they are based, though themselves unable to criticise them, and in this way seek to determine *how far* human knowledge can go by the aid of these fundamental concepts, that is to say, what are the *limits* of our knowledge. These fundamental concepts are: partly the most comprehensive concepts such as reality, existence, experience, knowledge, inductive, deductive, empirical, a priori; and partly the concepts of space, time, likeness and difference, cause and effect, change, motion, force, matter, thing. But in addition the theory of knowledge must try to find a way to the right scientific *methods*—the logico-mathematical and the method of natural science—and towards this end the examination of the above-mentioned fundamental concepts will especially contribute.

In German the words Erkenntnistheorie and Erkenntnislehre are used in the same sense as theory of knowledge and epistemology.

1. OUR COGNITION OF DIFFERENCE AND LIKENESS. SENSATIONS.

The first and most fundamental elements of our knowledge are, as I shall show in the following, our conception of difference and likeness between the sensations, and these sensations themselves. Without this conception of difference and likeness we cannot get anywhere at all, either in thought or observation. It is the most elementary starting-point of all thinking and observing.

The power of distinquisting implies that the mind can retain impressions after the influence from without has ceased, for to distinguish, an impression requires something from which it can be distinguished, that is to say, another impression which is not the same as the first one. But this discrimination is inseparably associated with a combination in our mind of the two impressions. If we consider the simplest phenomenon in consciousness, two sensations occurring just after each other or simultaneously (e. g. two notes after one another, two simultaneous visual sensations, e. g. of red and green in a flower), then we have immediately here the processes in operation which we encounter again and again in higher stages of consciousness. We have in the first place 1) the power of retaining impressions, for as already mentioned, the fact that one impression is retained, is a prerequisite of its being felt as a contrast to the other, and the reverse. We have here in the second place 2) the distinguishing faculty. The faculty of retention, however, is not merely accompanied by a discrimination, but also by 3) a synthesis, a kind of primitive comparison. Here then we have already at the stage of sensation those factors in action which later manifest themselves in all combination of ideas and comparison. 1) It is because of the power of retaining impressions that we have anything at all that can be called ideas, and 2) and 3), the power of distinguishing and combining impressions is the condition essential to the association of ideas, contact association, and to the comparison of ideas. By means of retention, distinguishing, comparison, all general ideas or concepts are then formed.

That these two phenomena, the sensations themselves and distinguishing and comparison, cannot be separated will appear from another observation. If there were not both difference and likeness between our sensations, we should not have any sensations at all. If there were no difference between the sensations, if we always had entirely the same

sense impression, always sensed one and the same thing, we should not have any sensation at all, If, conversely, there were never any sensations that resembled each other, if all our sensations were quite different, that is to say, constituted one single confused caleidoscopic, incessantly changing mass, we should probably not sense anything either, not have any sensations; at any rate all observation, all perception of sensations, and all thinking would be impossible. A single, incessantly changing, confusing stream of sense impressions through the mind would overwhelm and stun it. In our mind as it is, on the other hand, amid the differences the same main kinds of sensations constantly recur. The senses show us things of very different size and shape, but they all have the common quality of *size* and *shape;* further, the things have very different colours, but they all have the common quality of *colour,* and so forth. And even within the same main kind we meet with numerous sensations that entirely or partly resemble each other. Thus we encounter many things that are red, many that are blue, many that have the same size, the same shape, etc.

But when the sensations and the apprehension of likeness and difference are thus inseparably associated, it will be seen that Locke's, Hume's and Kant's sharp distinction between the sensations on the one hand, and the idea of difference and likeness as a form in which our understanding deals with or elaborates the sensations, is erroneous. To call the sensations a passive part, and the distinguishing and comparing process the active part of our knowledge is not justifiable. The sensations themselves, according to our statement above, turn out to be composite products. Even a quite simple sensation, as for instance a single note, a single colour, cannot be regarded as an element separate from a distinguishing and comparing process, but is at its very birth inseparably associated with the latter. Whether there is in this process something that is active and something that is passive we do not know.

To make any difference in the faculty of knowing between the sensations as "experience" or empirical material, and our ideas of difference and likeness as inventions of or a priori forms of our understanding is then on the whole unwarranted. It is probable that we cannot sense, that is to say, cannot observe, any more than we can think logically, without the distinguishing and comparing faculty. This process or faculty of our mind must be regarded as a basic factor in all human knowledge. It can neither be proved nor disproved. Whether it gives us a true knowledge of the world we do not know; but it is the ultimate

basic prerequisite whithout which no activity of thought, no observation of the world or of ourselves can take place. Distinguishing and comparing is the condition essential not only to all sensation, but consciously developed, to all clear and sharp scientific sense observation which brings together what really belongs together, and separates what has no similarity. Further the perception of likeness and difference is the final basic prerequisite of all mathematics, all logic. And all formation of concepts, all systematics, in natural science or in other branches of science are only made possible by the distinguishing and comparing faculty.

But first and last we must note that self-knowledge, psychological observation, is not possible at all, cannot act, and gets nowhere at all except through distinguishing and comparing. In our mind self-observation *distinguishes* between the individual sensations: red, blue, round, square, hard, warm; and notes *similarity* when the same sensation re-appears. The distinction between our sensations on the one hand and our mind's distinguishing and comparing faculty on the other hand is, as we see, the first result of this faculty. By means of the same distinguishing and comparing faculty we distinguish between sensations and the corresponding ideas.

Locke, Berkeley, Hume, and Kant all utilise the faculty of distinguishing and comparing as the supreme "court" in their self-analysis, though in the three former self-knowledge is empirical psychology, while in the latter it is a "transcendental self-knowledge". Their epistemology must then submit to being criticised with the same means of knowing; and as previously pointed out, already at this point, by the judgment of this supreme court, it may be established that their chief epistemological distinction and conclusion are incapable of proof: their distinction between the sensations as materials, and likeness and difference as well as other relations, as forms created by our mind, "inventions", "Verstandesformen".

At the stage of sensation the distinguishing and comparing process is closely associated with sense perception itself but is not one with it. As pointed out above, sense perception is inconceivable without distinguishing and comparison between the individual sensations. On the other hand, distinguishing and comparing may very well take place without sense perception, especially between two ideas (e. g. between two pictures I remember at this moment having once seen); and that is the reason why we can distinguish between the sensations and the distinguishing and comparing faculty itself. But, incidentally, at the stage of sense

perception this faculty already begins to show its independence, that is to say, its difference from the sensations themselves. If at this moment I look at a painting of some houses with red roofs and some green trees between the houses, I receive directly, without reflecting, a collective complex of visual sensations, of colours and contours, but at the same time I have a more or less clear idea or "impression" that the red and green colours recur in various parts of the field of vision, namely in the various red houses and the green trees. This "impression" of likeness, too, may be quite subconscious, but it may also, later, occur as a fully conscious and clear recording of *similarity* in colour between several objects in the picture, namely the houses and the trees which, apart from their colour, are different both in size and form. But this consciousness or „*impression*" of likeness and difference between the individual sensations, in this case visual sensations, in the same complex of vision is already here *different* from the *sensations* themselves. It is another mental faculty which has now begun to act a little in addition to the sensations. But the independence of this faculty manifests itself much more markedly when I "feel" or "find" a likeness between a sensation I had yesterday—or a month ago—that is to say, between an idea, and a sensation I have now; when I see for instance the same house today as I saw yesterday or a month ago. Finally the fundamental difference between the sensations and the corresponding ideas, on the one hand, and our power of finding likeness and difference on the other hand, shows itself clearly when this power operates with two ideas in memory, e. g. with a large and a small circle I saw

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The reason why our mind's finding of likeness and difference so clearly shows its independence and fundamental difference from the sensations in the above-mentioned case of similarity between a sensation yesterday or a month ago and a sensation today is that the *difference in time* between the two sensations is so relatively great that it will be quite clear that our mind's "finding of likeness" between two in themselves isolated sensations separated by a long interval must be a new mental factor in addition to these. When, on the other hand, we find similarity between two elements in the same visual complex, for instance between two red houses in the aforementioned picture, the comparing activity does not appear so sharply in reference to the sensations, because here we receive the two sensations—the two red houses—simultaneously. We feel them to be simultaneously within the field of vision. But there may very well be a small time interval between them, an interval which, it is true, is so very small that we do not become aware of it, but which nevertheless it might perhaps be possible to establish by psychological experiment in certain cases.

yesterday in a geometrical book and of which I am thinking at the moment, that is to say, which I have just called to mind.

Hence it must be established that the fact that our mind finds likeness and difference cannot indeed at the stage of sensing be distinguished from the sensations themselves, but otherwise it is a mental process or faculty different from these and their corresponding ideas. To Locke, Berkeley and Hume there were in our cognition two main groups of phenomena, sensations and the ideas derived from them, whether simple or complex. It was likewise clear to them that besides these two psychic phenomena there was a third, namely the combining, ordering, elaborating of our intellect; but they imagined that this evoked ideas of relations between sensations and ideas; and under these were included the ideas of likeness and difference between sensations and ideas.

Thus these philosophers never got beyond their psychic main scheme: sensations and ideas. But in general they did not inquire more closely into *these special ideas* concerning relations between other ideas and sensations. The mere existence of these special ideas did not accord well with their main thesis, that all our ideas were derived from sensations, simple, e. g. a colour; or complex, e. g. a thing; for while we perceive with our senses a red colour or a square red object, we cannot perceive with our senses a "relation" between two things, for instance a likeness between a thing I saw yesterday and a thing I saw today. On this point there is something obscure in Locke, Berkeley, and Hume. We lack a general investigation here.

Only *Hume* has examined one of these strange ideas of relations between other ideas, namely our *idea* of the *relation* between the ideas or sensations: *cause* and *effect*. But as a matter of fact he consistently arrives at the result that the relation between cause and effect is *not* derived from any sensation. Exactly the *same*, however, applies to the idea that there is a similarity between two ideas or sensations. This fact that the mind "finds" a likeness between two ideas or sensations is no sensation any more than our finding a causal relation between two ideas or sensations. If consistent Hume should therefore also have arrived at the result that our "finding" or "feeling" of a likeness between two sensations is a purely "internal" impression or feeling (an impression of reflection), an impression or feeling in ourselves; that is to say, it is not derived from the sensations, the things in themselves, (it is "in the mind, not in the objects"), "internal" impressions being contrasted precisely with sensations (as the external objects). And this,

indeed, agrees with the basic wiev of Hume. which he has from Locke, that all ideas of relations, hereunder likeness and difference between objects (i. e. sensations and ideas) are complex ideas, created by our combining, ordering intellect.

This consequence of Locke's and Hume's standpoint is also found clearly expressed by Kant. In his opinion the fundamental idea of likeness and difference (the concept ol size and the like) is not derived from the sensations any more than the idea of cause and effect. They both reside "in us"; Kant may very well make use of this expression from Hume. They are both forms of the assembling process of our mind (synthesis). We do not, however, find in Kant, any more than in Locke and Hume, any further explanation of this special psychic phenomenon, the likeness—and difference—establishing "activity" or process of our mind.

It is difficult to find an adequate linguistic expression for this process or faculty. In itself it is very natural to say that we "sense" or "feel" a likeness between two sense impressions. But the term sensations is usually employed about sense-perceptions, hereunder organic sensations, and the word feeling denotes a feeling of pleasure or pain; and the finding of likeness or difference is neither a sense perception nor a feeling of pleasure or pain. As is well known, the psychic phenomena are usually divided into cognition, feeling, will. Our finding of likeness and difference belongs to the first-mentioned category: and as already shown, this faculty testifies that there is more in cognition than sense-perceptions and ideas derived from these. Our finding of likeness and difference can be described thus: a sense impression (or an idea) cropping up in our mind impinges on a sense impression we have previously had and which has been retained in the mind as an idea and is now evoked by the firstmentioned sense impression (or idea) impinging on and entirely or partly covering the impression retained. When we have had a sense impression (e. g. of a yellow house with a red roof), and it disappears, a fainter reflection of it, a more or less vague copy, is retained in our mind; and this remnant of an experience in our memory may be revived again in our mind, if some other day we receive a fresh sense impression which entirely or partially covers the earlier one (e. g. of the same house in the same or another light, or another house which like the one previously seen has yellow walls and a red roof), or if by contact association from an idea *a* we get an idea *b* which "lies beside" *a* in our mind, as for instance when from an idea of a house No. 1 we

happen to think of house No. 3 which stands beside house No. 1 in the same street.

If we would designate this mental process, this finding of likeness or recognition in a wide sense by a separate linguistic term, the word "covering" might perhaps be used. It can be said, then, that in addition to sense-perceptions, simple and complex, and the ideas derived from these there is in our cognition the psychic phenomenon that sensations and ideas entirely or partially cover each other, or fall outside each other, i. e. they are found to resemble each other, entirely or partially, or to differ from each other. The quite general term: finding likeness and difference might of course also be used.

As to the relation of the earlier theory of knowledge to this fundamental faculty of cognition I may, in view of the preceding, briefly summarise the result as follows: If Locke, Hume and Kant are right in their contention that our conception of likeness and difference is a subjective form residing in ourselves, not in reality, the distinction drawn by them between the sensations (as materials) and the forms of our mind, and their contention based thereon is, if only for that reason, entirely without proof.

2. OUR APPREHENSION OF CAUSE AND EFFECT

The finding of likeness and difference by our mind is not, however, the only basic element in our cognition. There is in our mind another process or faculty, without which our general human and scientific cognition would be imperfect. This phenomenon too is very difficult to characterise, amongst other things because its genesis is very complex. Briefly it can be expressed thus. We apprehend the sensations not only in their mutual likeness or difference but also in that mutual relation that characterises the one as cause, the other as effect. What does this actually mean? And how have we got into the way of apprehending a sensation or a complex of sensations as the cause of another and this other sensation (or complex) as the effect of the former?

The philosopher who has so far gone most thoroughly into this problem is *Hume*. His psychological explanation of the relation between cause and effect is excellent up to a certain point; but at that point his explanation seems to me to fail him, though it has not hitherto been possible to discover where the fallacy of his reasoning lies.

Hume establishes that for two sensations to be apprehended as cause

and effect three conditions must be present. The two sensations must be associated in space, they must succeed each other in time, and a necessary connection must seem to exist between them. It is with this psychological explanation of the last phenomenon, the necessary connection, that, as far as I can see, Hume's explanation breaks down. He endeavours to show at great length that our idea of this internal connection is not derived from the two sensations, cause and effect themselves, nor is it derived from a third sensation, but it arises in the following way: when a sensation *a*, or the cause, has been seen to be followed by the sensation *b*, the effect, and *a* appears next time as a sensation, it draws with it the *b* which has been retained in memory and communicates some of its life to it: and when we have in *numerous cases* seen the same *a* and the same *b* appear after one another in a constant *succession*, there will from habit arise a fixed expectation of their succession in the future too, and an idea of an internal necessary connection or bond between them, that is to say, an idea in ourselves, but not in the sensations or objects (Hume I 392 ff., 450 seq., cf. book 1 107 seq.).

This explanation, in my opinion, is not right. The actual state of affairs is the strange one that merely a *single* case, a single sense observation (or sense complex) will be able to evoke in our mind the peculiar idea, a cause, and our search for such a cause. That sense observations is the phenomenon: *change*. If we see the ice melt, we at once ask: What is the cause? Hume—and after him Mill—supposes that the law of causality depends on induction, an inference from numerous cases of the succession of two sensations to all cases of it, in the future too. But this inductive theory of causality is a simple consequence of Hume's psychology of knowledge. According to it there exist only sensations and ideas derived from them. The cause is one sensation, the effect another which succeeds it in time. On these psychological assumptions it was impossible for Hume to explain the origin of the law of causality in any other way than by association between the sensations or ideas of cause and effect. But, so far as I can see, this explanation is not psychologically correct. The law of causality does not come into existence because we have repeatedly, even many thousands of times, seen effect follow cause, for in that case we should not at once when we see a change ask about the cause. Moreover it is not always the case that we first see the cause and then the effect. In numerous cases, perhaps even in most cases, we first see a change, that is to say, an effect, and only then do we look for the cause. But the very first time we see a change we at once ask: what produced this change; what is the cause?

Thus we first, and exclusively, observe the changes, the melting of the ice, the trees coming into leaf, the house collapsing or burning, the lightning striking, the fall of the stone to the ground, the rolling of the thunder, the booming of the river, the tumult of the waves, the blasting and falling of the rocks and the like, and then we look for the cause. When man first became aware of the phenomena "change", he assumed that mythical figures, gods, were the causes of the changes. It was his desire for a cause which first created these beings, or rather let his imagination create them. The gods of the primitive peoples are, precisely, gods of change, rain and thunder gods, gods of growth, sun gods, sea gods (when the sea is agitated the god is angry), wind gods, gods of death, nymphs of springs and trees, naiads, and dryads, river gods and so forth.

That the origin of the law of causality is not actually the associative one that Hume maintains will also appear from the fact that we do not nowadays find our desire to know satisfied by merely observing a change or by merely noting the succession of the two phenomena cause and effect. Thus we are not content to observe that the approach of heat results in the melting of the snow, which is Hume's succession of cause and effect, we want to know *how it takes place in more detail*, we look for the *internal* conditions *lying behind* the external sense-perception. As is well known, the molecular theory and the kinetic theory of heat explain the phenomenon heat as a motion of the molecules of a body.

Whence then is this desire for a deeper-going explanation of causality derived?

How dependent a theory is on the empirical instances on which it is based is seen from *Hume*'s *and Kant*'s theories of causality. Unconsciously these thinkers had in view different groups of cases when they formed their conception; hence their theories have both become imperfect, limited in outlook. *Hume* has in mind those cases in which we *first see the cause, then the effect* (for instance, the candle flame approaching the wax makes it melt: the fire makes the lead melt); or in which at any

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When, for the sake of brevity, we use the word sensation in the following, e. g. two sensations in succession, we mean a complex of sensations, unless it appears clearly from the context that a single sensation is meant, e. g. red. For a cause and an effect are as a rule each of them a whole complex of sensations. Thus e. g. the effect: lead melts, is a complex of the following sensations: the colour of the lead, the form of the lead during the melting, its volume and the like. In the same way the cause, the fire, is a complex of colours: red, white hot, form, volume, sensation of heat and the like.

rate we afterwards register the sequence of our experiences in this order. Kant, on the other hand, has in view the group of cases in which we first see the effect, the change, and then look for and find the cause, for instance the melting of the ice or the snow. Hume's case seems natural to his association of two sensations, and his theory then is that from the succession of these two sensations on numerous occasions we conclude that they will also succeed each other in future, but that this arguing forward from the cause which we see to the effect that has not yet set in, is quite uncertain. Kant, on the other hand, has a regressive inference in mind in his cases; he contends that the proposition that all change must have a cause is an a priori proposition of the same necessity and strict universality as the axioms of mathematics, and that this strict universality cannot be explained at all by Hume's assumption that the law of causality is a habit generated by the frequent repetition in the same succession of a cause and an effect (Kant III 29).

The mere fact that these two thinkers have different groups of experiences in view in their theory of causality shows that the problem of causality is more complex than they thought.

Both Hume and Kant realise that we understand the connection between cause and effect to be a necessary conection. But none of them has

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Locke and Hume sometimes unconsciously regard cases in which we actually first see the effect and afterwards find the cause, as a relation in which we first see the cause. This often happens to all of us. We see the wall-paper fade. Subsequently we come to the conclusion that it is the sunlight that is the cause of this change, but later again we unconsciously drift into the habit of regarding the order of succession as (1) cause—(2) effect; i. e. the sunlight· the cause; the fading of the wall paper: the effect.

When Hume presents the relation of cause and affect as a succession of two sensations, it should be noted that the effect, the change alone, always consists of two or more sensations. The condition before and now: first the snow in the frozen white condition, and then the snow in the melted condition (besides possible intermediate forms of the melting condition); and then we find a third sensation, the heat of the sun, as the cause. When the fire makes the lead melt, we first see the fire and the lead in the solid form, then the lead in the melting and the melted condition. In nature the two *sensations* or processes in which the *change*, the effect, consists, often constantly succeed each other. While the lead in the solid condition is not always, but on the contrary rarely, succeeded by the lead in the melted condition and in that case only in such a way that as a rule we also see the cause, namely the fire, in nature, on the contrary, we always see night follow day, summer coming after winter, the fall of the leaf coming after budding and the like, but at the same time we do not here see the cause of the change. Here too there is an "object" in which a change occurs as in the lead that melts, namely, the

been able to give a satisfactory explanation of it. They both believe that this necessity lies in ourselves, is a subjective phenomenon. Hume, arguing forward to the effect which has not yet set in, maintains that it is a purely internal feeling which experience does not justify, Kant, on the other hand, contends that the necessary causal connection, though subjective, is an indispensable element of all experience; for, arguing back from effect to cause, he believes that we cannot have any experience at all of a change without inquiring into and finding out its cause. Kant gives no psychological explanation of how our idea of this necessary connection between cause and effect has arisen. He conceives it to be a form of thought due to the nature of our intellect, like the axioms of mathematics. Kant's transcendental a priori method, so remote from reality, has here prevented him from seeking a deeper-lying psychological explanation. Hume, on the other hand, as we have already stated, explains our feeling of this necessity by the frequently repeated succession. But this explanation does not cover the facts. As I have tried to show above, merely a single case of change will evoke our idea of a cause and of a necessary connection between it and the effect, the change. Hence the concept of causality and the relation between cause and effect must be derived from other sources of our mental life.

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woods or that part of the firmanent which comes within the range of our observation. Here too we ask for the cause, and here too primitive man in the earliest times found the cause of the change in the intervention of mythical beings. Later man has after long millennia of thought found out the cause, but with varying explanations (the Ptolemaic and the Copernican). In our day, as we know, we consider that the cause (of day and night, summer and winter etc.) is the earth's rotation round its axis and round the sun.

It cannot be objected to Hume's theory that the constant succession in time of two sensations need not be a succession of cause and effect, since day and night always follow in constant succession though we do not therefore say that day is the cause of night. For Hume claims for the causal succession both that the two sensations, processes, should succeed each other in time, and that, though near each other, they should still be separated in space. Day and night, summer and winter, are not two different "objects" (in a wide sense) separated in space but a *change* (in light and heat) in the same object, that is to say, in that part of the atmosphere and space which surrounds our earth and is therefore within the range of direct human observation. And here we may call to mind the fact pointed out above that the change alone is two sensations, two processes, the lead in the solid and in the melted condition, the space above us in the day and in the night, in summer and in winter. Thus the earth's rotation as the cause of the two links in the change, night and day, summer and winter corresponds to the fire in relation to the two stages in the change of the lead, the solid and the melted condition.

Those instances of a causal connection of which Hume is thinking are the same that Locke mentions, namely the causes and effects of daily life in the external things of the surrounding world: fire will melt wax or lead, and the like. Kant no doubt also had in view causal connections of external things in the surrounding world (cf. e. g. Kant III 164), but as already stated, with the difference from Hume that he starts from the change and argues back from the effect to the cause.

But, as far as I can see, these changes in *external things* cannot have started the idea in man's mind of a capability of causation, an inner necessary connection between cause and effect. The origin of our idea of causation is to be found in quite another psychological domain than the visual and other sensations (e. g. the sensation of touch) which reveal to us the external objects of our environment and the changes in them.

Our idea of causation is in the first place derived from *inner experiences*, from conditions in ourselves, from which we then draw parallels to the world around us. So far as I can see, these inner experiences are two in number.

A. One of them is our experience of strength or power. Already *Malebranche* pointed out that in our own strength or power we experience a causal connection between an act of volition and a material movement. But it is true that we only see law-bound relations between external movements, not a necessary or understandable connection between the act of volition and the material movement; and so far therefore the concept of power is due to a fiction. In this line of thought Malebranche is a precursor of Hume; but he has an eye for power as an element of our conception of causality which Hume lacked. Malebranche, however, did not realise the true phychological relations of the problem. In the 19th century *Maine de Biron*, has *strongly emphasised* our experience of will, of our muscular power and the consequent movements of our bodies as the factors determining the creation of our concept of causality, our idea of causation. In modern psychology *Frithiof Brandt* has especially thrown light on this and has pointed out that altogether the idea of power springs from experiences of muscular sensations, from the peculiar feeling of muscular exertion, and that whenever we interfere by muscular action with the things around us we immediately experience a causal relation (a relation between cause and effect). Thus there exists a direct experience of causation. Hume did not see that we actually have sensations, namely the sense of touch and the muscular sensation, by which we experience a causal connection; but he is right in thinking that we cannot observe a causal con-

nection by any visual sensation. And the *necessity* of the connection between cause and effect cannot be observed (see Frithiof Brandt I 113-14; II 18, 297—98, 300—302).

Thus we ourselves experience direct causation as an inner connection between ourselves and the surrounding world. We know from ourselves that when for instance with our hand we thrust a knife into a piece of wood there is more for us than the following sensations in external succession: a, the sight of the knife and its movement towards the wood, and b, the slit in the wood. In addition to these visual sensations which outwardly satisfy Hume's conception of cause and effect as two sensations a and b in succession, we feel as an internal organic sense a power in our hand which produces the movement of the knife into the wood. This power behind the movement, the dicision of our will and its influence on the muscles of our hand, is *invisible*; no sensations of sight from the external course of events reveal this inner feeling of power and connection. But it is this very feeling of power which gives us the idea of an inner connection between the two visual sensations of which Hume speaks, though he cannot find it as he only experiences two visual sensations, in this case the movement of the hand as the cause and the slit in the wood as the effect. But owing to the inner connection we must call our will and muscular power the deepest, actual cause of the slit in the wood. And if we see another person or an animal produce a slit in wood or anything else by cutting with a knife or biting with its teeth, we conclude by analogy that there is a similar inner connection behind the events as we observed in ourselves, that is to say, we draw the conclusion that the muscular power of this person or animal is the cause of the movement and the damage done to the wood.

Hume's fiield of experience was too narrow. Partly, as previously stated, he only thought of causal connections between things, and partly his psychological horizon was too limited. Of sensations Hume only knew and acknowledged sensations of sight, hearing, touch, and the like, in other words the sensations that give us the external things; and thus Hume's two limitations are associated. But Hume did not know the sensations which modern psychology terms organic sensations, that is to say, our inner sensations of muscular tension or strength and the like. Hume's limited psychological horizon is revealed by the very fact that

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On Malebranche's and Maine de Biron's related view in that respect see further Brunschvicg 6 seq. 19 seq.

he rejects the concept of "power" as the cause of movement, for he has never seen power or heard or touched it, as an external object. This limited psychological horizon kept Hume ignorant of the important contribution made by our own muscular sense towards the understanding of the two visual sensations, cause and effect. Thus he has been forced to explain the causal connection as an entirely external, constant sequence of two events or sensations.

In cases in which man himself starts a series of causes and effects, for instance if I myself make a gash in a tree with a knife, there are, according to Hume's view, the following successive sensations: 1. the movement of my hand and with it the movement of the knife into the wood, and 2. the gash in the wood: 1 is the cause and 2 the effect. Hume's explanation of the necessary connection between these two sense-perceptions is that we have so often seen this cause, the movement of the hand and the knife into an object, followed by this effect, the damage, that at last we get a belief generated by habit that when we next get sensation 1 (or rather part of it) we shall afterwards get sensation 2. Already the purely external changes in the objects of the environment (e. g. the melting of the snow) showed that this explanation must be wrong: for, as shown above, only a single case of change carries with it the idea of a cause. But in the instance just mentioned, where *man himself* starts the sequence of causes and effects, it will be even more clear for if I only once with my hand thrust the knife into the wood and thus make a gash in it, I have got a clear idea of a necessary causal connection between these events; I do not need Hume's numerous cases or habit to assume that next time the same power will produce the same movement of the knife and the cut in the wood. And at the same time we see that Hume's description of the causal sequence, 1. the purely external cause, the movement of the hand and the knife, and 2. the effect on the wood, is not right, for the decision of my will and the tension of my muscles is cause 1, the movement of the hand and knife is effect 1, and the slit in the wood is the effect of this effect, is effect 2.

At first, in his primitive stage, man, as pointed out above, regarded the course of natural events in which neither man nor beast co-operate, such as the flowing of rivers, the striking of lightning, as the outcome of the intervention of higher beings on the analogy of our own movements, of the way in which man sets things in motion by inner forces. But even after this human analogy had been abandoned the internal necessary connection between cause and effect in the external course of events was explained by forces acting behind what our visual sen-

sations show us. And this analogy, as I have already pointed out, is still widely applied in the natural science of today. When for instance our visual sensations show us a piece of metal approached by my hand to within a certain distance of a magnet, after which the magnet attracts the metal to itself, I know from myself, from my organic sensation, that beyond the visual image of the external phenomenon: my hand that carries the metal in the direction of the magnet, there is the inner phenomenon, which the visual sensations do not give us, my muscular strength which is the cause of the movement of the hand and the metal. Though I cannot see this cause in the environment, I can feel it as an organic sensation in my hand, while other people can neither see nor feel it, but can only get to know it by inference, namely by an analogical inference. And next time we see the piece of metal drawn towards the magnet—after my hand has let it go—, we infer by analogy that here too there must be a cause of the movement, a force in the magnet which our visual sensations do not show us, which the "external world" does not reveal, but which must be a phenomenon acting beyond the external world and causing the internal necessary connection between the external phenomena, similar to the force acting beyond the movement of my hand, as an inner factor of existence, hidden from sight. And when natural science explains certain phenomena such as heat, electricity, and radio-activity as movements of molecules, ions, electrons, protons, and the like, we again go beyond the visual sensations to an inner causal connection, to movements of invisible particles; and even beyond the movement and interconnection of these particles we assume forces. But both when we asume the particles and the forces, our conception, as I have shown elsewhere, is based on analogical inferences, on what I have called the method of translation (see book I 283 seq.).

In the face of these magnetic and electrical phenomena Hume's explanation of causation is bound to become a purely external one. The two successive sensations in the magnetic phenomena are: 1. the placing of the piece of metal within a certain distance of the magnet, and 2. the movement of the metal towards the magnet. According to Hume's quite external conception, 1 is the cause and 2 the effect, but this gives no real explanation of causation according to the modern view. The human mind is not satisfied with this external succession, with which, according to Hume, it must content itself. He cannot explain that our mind regards the movement of the metal towards the magnet as the starting point of fresh thinking, namely as a change, and therefore inquires: What is the cause of this change? And with this inquiry we touch

upon the concept of force, etc. And when 1, the placing of zinc and copper in a particular liquid, is followed by 2, electricity in a connecting wire with phenomena of light, Hume will say that 1 is the cause of 2; but modern science has not been satisfied with this external sequence. The deeper explanation of the cause offered by modern science (the movement of particles, ions, and electrons in the said liquid and metals) is quite incomprehensible from Hume's psychological point of view.

There is, however, an important truth in Hume's conception of the relation between cause and effect as a mere succession of sensations. It is one thing that Hume's view cannot explain psychologically the origin of our concept of causality. It is another thing that when we go beyond our own muscular power as the cause of movements or changes in the surroundings, the deeper knowledge of the cause to which our modern concept of causality leads us goes beyond our sense observation of the external world which only shows us successive sensations. We *interpret* these successive sensations, as I have already shown, by analogical inferences from our own strength or other similar phenomena. But we must continually verify these analogical interpretations by fresh sense observations. The *constant succession of sensations* is the certain fact; but their interpretation may change through the ages. In the world of nature we sometimes only observe the two links in the change, the condition before and now, in constant succession, but never the cause. We never visualise it or sense it in other ways. We must discover it by thinking. But behind this constancy and regularity in the occurrence of the natural phenomena we always look for a deeper connection which can show us the cause of the change. An example of this is the change from day to night, from summer to winter. Since it is only by thinking that we infer the cause here but never see it, it may happen that in a certain period man finds an explanation which is rejected in a later period. Primitive man, who in the earliest times noted a constant law-bound succession of the phenomena day and night, did not long rest satisfied with noting this conformity to law. Very early his imagination began to seek a deeper-lying cause; and he assumed that higher beings, gods, were behind it. Later on, when the scientific explanation superseded the mythological one, for more than a thousand years the Ptolemaic explanation that the sun like the other heavenly bodies revolved round the earth, was accepted, and has only in modern times been superseded by quite another explanation, the Copernican, according to which it is the earth that revolves round the sun. In recent times atomic research has occasionally had to be satisfied with establishing a statistic-

ally frequent conformity to law in certain phenomena, without—as yet —being able to demonstrate the deeper-lying cause; and some think that it will be impossible to find such a cause.

A deeper-lying cause or causal connection will, however, prove to be a simpler state of things, necessarily conforming to law, as when Copernicus' explanation replaced that of Ptolemy. Provisionally we may perhaps draw a linguistic distinction between *conformity to law* in the occurrence of the phenomena and *causality* (Meyerson's Légalité and Causalité). But ultimately the so-called causality will prove to be a law-bound conformity too. Hume has a keen eye for the external conformity to law and there is this much truth in his view that if we were to keep exclusively to our visual perceptions and other external sensations (hearing, touch), we should never get beyond establishing the external conformity to law. But Hume did not see that the human mind, even in its most primitive stage of evolution, cannot help asking what is the deeper-lying cause beyond this external conformity to law. At this point our internal organic sensations, overlooked by Hume, come to the aid of our thought or imagination by analogically transferring our experience of our own strength as the cause of the change in the surroundings to other living beings, and later on to the movements of all external things and the consequent changes in the external world. But whether this analogy is justifiable is another question (see below).

B. However, there is a source of our concept of causality other than man's experience of his own strength as an outward-going cause in the surrounding world; and this other source has not so far been observed, though as far as I can see it is the most important source of the concept of causality.

For there is another experience which has made just as strong and direct an impression on men as the experience of their own strength: and that is *the experience of pain* to themselves. The changes in the surroundings that cause pain to man are of the most intense significance for the weal and woe of man. This is especially true of primitive man. Each time primitive man was hurt, be it by a bite or a sting from some other creature or by a knock from falling stones, trees, or other objects, the first instinctive question asked by man must have been: who has done it, or what has done it? Here then an idea instinctively comes up

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Primitive peoples as a rule assume that the visible effects or changes are caused by an invisible power or force, mysterious beings, sorcery, or the like. This is true not least about death, the event causing the deepest change in men's lives. See Brunschvicg 91 ff.

which later on develops consciously into the concept "cause". While most changes in the surrounding world hardly make any very deep impression on primitive man, the special group of changes which give rise to pain produces the greatest agitation in man and at once makes him search for the person who has caused it, the guilty person. In the primitive stage cause and guilt are identical. It is significant here that the very word "cause" originally, if we trace its etymology, expressed ideas of guilt and the establishment of guilt or non-guilt. In Old Danish orsagh means excuse: orsaka, old Norse orsekr means without a cause, without proceedings, free from punishment. Orsaken means to clear one's character of an accusation, deny the charge of a crime, excuse oneself. The Latin word causa (French and English cause) means at the same time guilt and an exculpating reason.

Pain moves all living organisms, especially animals and humans. To all living organisms pain is the danger signal which rouses the instinct of self-preservation. In its instinctive preventive measures every organism must first sense, feel, later recognise the place in existence, the part of the surroundings from which the sensation of pain emanates. Even low animal organisms whose sensing is but little developed, instinctively, when hurt, withdraw their organism from the place from which the attack, the pain, came. In the feeling of pain or attack from without, and in the vague perception of the part of the surroundings from which the attack and pain came, experienced by the lowest organisms, we have presumably the very first germ of the principal part of our knowledge of causality namely the part which after the effect (the change) inquires about the cause. Here then a cause, to animals and even to primitive man, is in the first place a cause of pain, i. e. that part of the surroundings of the organism which has inflicted the pain. But at the same time there comes to primitive man the other great experience: the feeling of his own strength as the cause of movements in the surrounding world, and among these also the warding off of attack and his own attacks and infliction of pain on others.

Now how is it that man, from pondering especially on the changes that cause pain, proceeds to ponder on all changes? So far as I can see it is due to the fact that man, even primitive man, is instinctively adjusted to a certain stability in his surroundings. Permanence and

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Animals are capable of local reaction to pain, by withdrawing from the source of pain that part of the body which was hurt. The lowest animals, amoeba and infusoria, do not react locally but totally, by withdrawing the whole organism.

stability are the rule in man's existence, change is the exception. The earth on which man lives is solid, the mountains surrounding the valley in which he dwells are solid and lasting; the woods and lakes are likewise lasting, enduring. And man's welfare is dependent on this stability of environment, for it surrounds man's work and his whole life with security and peace. To all interruption of it, that is to say, to all change, man responds in the first place by asking: why? What is the cause of the change? When man first became aware of the phenomenon of change in the surrounding world he supposed, as we have already said, that there existed beings resembling himself, mythic figures, gods, who caused the change, and by sacrifices (gifts) to these beings he thought he could ward off these changes, these interruptions to stability which often meant catastrophe to man.

It was only at a much later and higher stage of intellectual development that man abandoned this explanation and aid to understanding, and tried to prevent and predict these interruptions of stability, these disasters, by searching for external observable phenomena as causes of the changes, and by noticing which causes produced the various effects. In the meanwhile the strong urge of man for stability, his desire that things should preserve their identity with themselves through the ages manifested itself in the fact that at a still later and higher intellectual stage the human mind was not satisfied merely with observing and noting the many different sequences of causes and effects but looked for a deeper-lying explanation that should go beyond the external phenomena and again bring about a certain stability, a certain identity between the earlier and the new state of affairs in spite of the change. Partly it assumed forces which are constant and permanent even if they change their form, and partly it assumed particles (molecules, atoms) which are also unchangeable; and it then attempted to trace all visible changes to the intervention of these constant forces (on the analogy of our own power) or to movements of these permanent smallest particles, the basic elements of universal matter. But in this way the phenomena of change and difference are not eliminated from the world. They are merely simplified.

Now what is this phenomenon: the *change* in the surrounding world to which we react by inquiring about the cause? It consists in two phenomena usually called local change and qualitative change. In the present exposition they are called change of position and change in the object; they consist either in a movement of the object, a change in its position in space, or a change in the object itself (e. g. the melting of

the lead, the fading of the wall paper, the burning of the coal etc.). As was shown above, Hume's constant presentation of cause and effect as two phenomena of which we first see the cause and then the effect actually only applies to a limited field. This field, so far as I can see, covers partly changes of position in which we see e. g. one ball in motion hit another ball at rest and so set it rolling, or we see a horse pull a cart and the like, and partly those changes in an object which we ourselves produce by our muscular power, as for instance when we cut wood with an axe. In changes that are not brought about by ourselves and which are not changes of position, e. g. the melting of the snow, the fading of the wall paper, the trees coming into leaf, we usually, as I have already pointed out, experience the change first, that is to say, the effect, after which we later find the cause; and only when this has been found do we gradually by habit acquire our idea that the cause, in the above-mentioned cases the light and heat of the sun, precedes the effect, the melting and the fading. In phenomena such as the melting of the lead and the burning of the coal it is mostly man himself who is the first cause; he starts the change by some movement, some exertion of his muscular power, putting the lead or the coal into the fire; but in our everyday manner of speaking we usually say that the fire (or its approach to the lead or the coal) is the cause, and the melting or burning the effect.

The conception of cause and effect as two successive sensations is imperfect. The change, the effect alone, consists of two sensations, the condition before and now, and often we have a whole series of sensations, with gradual transitions (cf. above p. 104 note). When lead melts there are not only two sense-perceptions of the condition before and now, the lead in the solid and the lead in the melted condition; while the lead is melting there is a whole series of consecutive sensations with vague gradual transitions; and these sense impressions resemble each other—it is still the same lead in the same place—as well as differ from each other—the shape and density of the lead gradually change while it is melting, and partially also the colour. From the need of our mind for stability and our desire that things should preserve their identity with themselves through time, we keep as long as possible to the assumption that, in spite of the change, it is still the same thing we have before us, the same lead in spite of the melting, though gradually we have to realise that it is the same and yet not the same object. But it has not changed of itself: something has been added from without. We discover that the gradual change is due to the fact that

something new has been added from without, namely, the fire, and our mind will again find rest in a fresh stability or identity in spite of the change. And we then draw a similar conclusion as between reason and consequence in our purely logical or mathemathical reasoning; the fire + the lead in its solid form = the lead in its melted form. There is not, however, any real identity like that of logic in things in the surrounding world while they are changing. We merely get approximation to identity, even if we regard the basic elements (atoms, protons, electrons) as eternal, always identical with themselves. For we cannot get away from the fundamental change, the *changing of the position* or movement of the elements in space.

It will give no correct picture of what actually happens to regard the effect, the change, as a single sensation sharply separated from the cause, as Hume does. This sharp division into two quite simple elements makes the transition between them, between before and now, and the connection between cause and effect, particularly incomprehensible. We have a better understanding of our idea of a necessary connection when the effect, the change, always consists of at least two sensations, and when as in many cases in life, in nature too, (the melting of the snow, the trees coming into leaf) there is a long series of sensations with quite gradual transitions during which the mind little by little accustoms itself to the change and, looking for a fresh stability, finds the factor which seems to us slowly to "bring about" the changed condition, i. e. the cause.

The results of the preceding investigation, then, is that the origin of the concept of causality in our mind is very complex. Our mind's first impulse to form the idea of a cause and an inner causal connection has not, as I have tried to show, come from many repetitions of the same two successive external events and a consequent habit, but in a way quite natural to our mind it could arise from only a single experience of our own muscular power as the cause of movement in the surrounding world,

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The causal connection must have been imprinted on man's mind with particular vividness and intensity in those cases in which he inflicted pain on himself by his own act. Thus if I have but once wounded my hand with my knife I have received a quite sufficiently vivid idea of what the effect will be in the future from this cause, so that I by no means need a habit engendered by many cases to get the idea of a necessary connection, a causation. And even in the morning of life, when primitive man first cut himself on a sharp stone, in his future inference from the same cause to the same effect he doubtless hardly needed more than this one example to realise vividly the necessary connection.

from a single experience of our own pain, inflicted by some part of the surroundings. To realise this it is not actually necessary to go back to the earliest times, even though the material we possess from the history of religion confirms that, as exemplified above, human or anthropoid forces are the first perceived causes of changes in the surrounding world and in ourselves. But it would seem obvious that whenever man used his muscular power to start a new movement, and whenever he experienced a fresh pain from the surrounding world he only needed this one experience and not many habitual repetitions of it for the idea of a cause to be deeply imprinted in this mind.

It is another thing that gradually as the human memory developed man must have been able to retain in his mind many experiences of such causal connections, and experiences of several instances of the same causal connection. And little by little as by means of sense observation man learned to notice successions of causes and effects in external things, though the changes were neither due to his strength nor inflicted pain on him, the memory of these causal series was of course intensified by their constant repetition. In Hume's view of these causal series in external things there is an important truth; for when man first, through his muscular power and his pain, got the idea of a cause, his observation received of two phenomena repeatedly occurring together in the surrounding world of course suggest to him that there was a similar inner necessary connection between these two phenomena outside man as he had himself experienced when his muscular power set an external object in motion or produced a change in such an object. When man observed the regular effect of his own acts, when he saw that a special use of his strength in a particular direction again and again had the same effect, it must have seemed quite natural to him to assume when he saw a phenomena in the surrounding world repeatedly accompanied by a change in the external things—the push and the rolling of the ball, the heat of the sun and the melting of the snow—that the first phenomenon was the cause or "origin" of the second, the change, and in the future would just as necessarily produce the latter as man's will power produces changes in objects.

The memory of series of the same causes and effects repeated many times has become of ever greater significance to man as little by little he has learned how to utilise these causal sequences to his own advantage, both to avoid injury and to obtain easier life conditions. In this field the repeated succession of cause and effect in multiple different complexes pointed out by Hume has been of immense importance. And thus man

has gradually acquired considerable practice in inferring from cause to effect.

But at the same time the human desire for stability, for identity, comes into operation, the need to assume that, as in the logical conclusion from reason to consequence there is even in spite of the actual change in the surrounding world, the transition from cause to effect, a certain identity between the states then and now. For already in our daily explanation of causation our mind finds rest in the idea that the change does not happen of itself, inexplicably, miraculously, but has its reason in a previous condition, a + something new, b; and that the conclusion, the change, is the result of the premises a+b. But, as we said above, we arrive at a closer, a more intellectually justified identity between these premises and the conclusion if, relying on the deeper natural scientific explanation of the molecular and atomic theory, we assume that the basic elements of universal matter itself do not change in spite of the many apparent changes in the visible surroundings. For, if the basic elements, the atoms, electrons, protons etc. are unchangeable, all changes in the universe consist merely in movements of these eternal elements.

To explain or to know is to trace something unknown to something known. When we "explain" heat, electricity, and the like as movements of small particles (molecules, ions, electrons), this means that we trace the previously inexplicable phenomena heat, electricity, to something we know from daily life, movements of bodies. This explanation I would call the *visual translation*, since we, as it were, "translate" a series of natural phenomena inexplicable to us into a language intelligible to our sense of sight. If we would further explain or become acquainted with these and other movements there is only one phenomenon which we know better than the external movements, and that is the will power we experience in ourselves, and by which we produce our own movements. This explanation I would call the *dynamic translation*. But apart from our own movements we observe no force behind the motions in the universe by our senses. If therefore all changes are explained by the molecular and atomic theory as motions of bodies, from the largest to the smallest in the universe, or (like light) between bodies, all that we can establish is merely certain law-bound relations between motions. *The concept of causality must share the fate of the concept of force. Force* and *cause* are ancient ideas deeply rooted in man's mind; we are reluctant to abandon them and can hardly conceive that we can do without them. It is understandable therefore that Kant believed that the idea of causality was an a priori form inherent in the structure of our mind, with-

out which we cannot understand or experience any phenomena at all. But a force or a cause as an inner active factor "producing" an effect is a hypothesis which we do not seem to have any possibility of verifying.

Since we are unable to observe any force or cause of the motions in the universe, it will be the task of natural science to ascertain and register the law-bound relations of the phenomena of the universe, a registration which is of the greatest importance in a practical and technical respect but above all, from the strict scientific point of view, is the only correct procedure at the present stage of science.

Through the above examination of the psychological origin of the concept of causality I have presumably shown that this psychological explanation from quite another field points precisely in the same direction in which I was led by my quite different investigation of the fundamental concepts of natural science (see my book "Erkendelseslære og Naturvidenskab" 1941), though these two investigations were carried out quite independently of each other, and without mutual reference. For, so far as I can see, it appears from this psychological explanation that the concept of causality takes its rise from human experiences of the most profound significance for human life and welfare, namely from our own experiences of *pain* and *power*. But if the concept of causality is thus derived from our own human psychical experiences of these conditions, pain and power, it follows that we are not justified in simply transferring these human experiences to the universe and the motions of its bodies. Nothing need prevent us from still operating in physics with the concepts of force and cause, as for instance in Newton's laws of gravitation showing that force is the cause of change, or from talking of a "causal connection". But when we use this terminology we must constantly keep in mind that in reality we are merely dealing with an establishment and registration of law-bound relations between phenomena of the universe. The epistemological investigation of the fundamental concepts of natural science (in my above-mentioned book, especially of the concepts of change, motion, force and cause), and the psychological investigation above both seem to lead to the same result.

This origin of the concepts of force and cause, on the other hand, is no proof that the experience of pain and power which have led to our understanding of causation is without any value for our knowledge of the universe. The strong desire of the human mind to ask *why*, to get "behind" the external phenomena, will always, in the future too, urge us to search for "deeper-lying", that is to say, simpler laws in nature. This

desire for inquiry, this wondering, this constant Why, has been a powerful incentive in scientific knowledge. Without it we should not have abandoned the Ptolemaic for the Copernican picture of the world, without it we should not have penetrated behind the external phenomena of heat, electricity, and radio-activity, and arrived at the deeper understanding which the kinetic theory of heat and modern atomic physics have given us of these phenomena. Behind our questioning and search for a deeper understanding there is probably also, in addition to our experience of pain and muscular power, our desire for identity, for immutability, eternity, our need to bring about identity between the condition before and the condition now in spite of the apparent change, a desire which is never quite satisfied, for we can never get away from the fundamental change: motion.

But both when the Copernican system of motions replaced the Ptolemaic, and when the molecular and atomic theory superseded the direct conception of heat, electricity and the like, these changing views of the motions of bodies in the universe in the last instance only meant that an earlier assumed law-bound interrelation was replaced by a later, which was thought to be more correct and more simple than that previously accepted. But however far human thought attempts to carry the process of understanding it must realise that at one point it must stop. And at the present stage of natural science it would seem that for the time being we must stop at the observation of the law-bound, or statistically frequent interrelation between the motions in the universe.

3. OUR KNOWLEDGE OF LAW-BOUND INTERRELATION (CAUSE AND EFFECT) IN REFERENCE TO OUR KNOWLEDGE OF LIKENESS AND DIFFERENCE

Our awareness of certain sensations in the law-bound interrelation which we call cause and effect goes far beyond our awareness of likeness and difference between the sensations: but our knowledge of causality is based on and starts from our awareness of likeness and difference and would be inconceivable without this awareness. Thus change, effect, cannot be conceived at all without several, sometimes a whole series of, sensations which both *differ* from and *resemble* each other; and these impressions differ from that or those sensations which we call the cause, whether we observe this at once or only find it later; and if we say that the same connection between a particular cause and a particular effect is repeated, this is a judgment concerning likeness.

But though our awareness of likeness and difference thus precedes and is the foundation of our conception of a law-bound interrelation that exists in all changes, the latter conception also belongs to the basic elements of our knowledge. Just as the sensations constantly show a likeness or difference to each other, they also incessantly occur in the regular or law-bound series which are called causes and effects in everyday speech as well as in the specialised sciences. We may put a special construction on these law-regulated relations or series, assuming an inner connection which the observation of our senses does not disclose except in the case of our own muscular power or our sensation of pain; and this construction may vary in the different ages (deities, forces, motions of particles), and the interpretation therefore does not belong to the inevitable, ultimate elements of our knowledge. But the constant regular successive series of sensations which we call cause and effect are intimately connected with sense observation. Not only do we receive a sensation such as fire and find a similarity between it and the fire we saw yesterday, and a difference between it and the lead we see beside it, but we also see the fire melt the lead. That is to say, our visual sensations of the lead in the solid form and its placing in the fire are replaced by our visual sensations of the lead in a more and more fluid form. In the same way we observe that the flowing river carries the tree trunks with it, that the wind moves the leaves of the trees etc.

Now this does not presumably mean that all *sensing* is impossible without an awareness of causality. Thus I may very well at this moment have a static complex of visual sensations, e. g. of the park outside my window: there is no change here that compels me to think of causation; I may observe both similarities and dissimilarities—for instance between the trees of the park—without being obliged to learn anything about a causal connection.

It is one thing, however, that we can thus have sensations of stable things identical with themselves within a certain *limited period;* but this is only a small part of our entire sense-perception. If we take the latter as a whole it is true that through a certain period of time we experience *unchangeable complexes* of stable lasting things in the surrounding world, but at the same time we experience a constant stream passing through our consciousness of *changes* in the surrounding world and in ourselves, of changing sounds, lights, and the like; and our sense-perception as a whole would no doubt be just as chaotic, if the manifold changes did not always occur in regular, law-governed series, as it would if things did not appear in regular groups with likenesses and differences.

At bottom our mind is probably adapted to a fixed unchangeable environment of lasting things, a state of eternity; but when this stable lasting world is broken up by many changes our mind will, as it were, more easily become reconciled to the changes because there is a certain stability even in these, namely the law-bound series in which they always occur. There is a constancy even in the inconstancy of this world, which makes us put up with it, reconcile ourselves to it, adapt ourselves to it, calculate beforehand its genesis and course. It may therefore be safely assumed that not only the likenesses and differences between the sensations, but also the law-bound interrelations between them are inseparably associated in our mind with our sense-perception, with the stream of sensations. An example from our daily lives will show this. We are for instance walking down a road, on either side we have fields, further along there are some houses, still further away is the wood, and adjoining this the sea. All this forms neither wholly chaotic sense impressions nor a perfectly uniform sensing—in both cases we should presumably sense nothing at all, nor indeed have any consciousness whatever. We experience numerous and great differences between the impressions, between the fields and the wood, between these and the sea, between all this and the houses. But at the same time we incessantly experience many and great likenesses—between the fields on either side of the road, between the different parts of the fields, between the trees in the wood, between the waves, the water masses of the sea, between the houses and so forth. Again, in very many instances we experience the fixed and stable in life which gives us a certain feeling of security: the firm ground, the enduring houses, the wood and the sea, which are both where they have always been in our time and for many hundreds of years before. At the same time we no doubt experience many changes against the background of all this stability: the wind makes the cornfields wave, moves the leaves of the trees, and the waves of the sea; and we ourselves move as we go along. But inseparably associated with all these changes is the incessant *repetition*, the *stable regularity*, with which all these movements in nature and in ourselves occur, the fixed law-bound interrelation which dominates all the changes, making us familiar with them, and enabling us ultimately to govern, utilise and stabilise them to a certain degree.

Just as *sensing* may occur in *parts*, but never wholly, without a law-bound interrelation and never without difference and likeness, so also with *thinking*. A large part of thinking is possible without any apprehension of causation. In all *formal sciences*, mathematics and formal logic, which

deal with unchangeable objects, figures, numbers and the like, we only use our capacity for finding likeness and difference. It can be said then that no science, no sensing, and no thinking can exist at all without our recognition of likeness and difference, while this cannot be said of our apprehension of causation. I have therefore placed the recognition of likeness and difference in the forefront as the very first and fundamental condition of all knowledge. Even our apprehension of causation is, as I have shown, impossible without this ability to find likeness and difference. But, on the other hand, it can be said of our apprehension of causation that all *practical* science would be *incomplete* without it. It is true that even in the practical sciences we can by means of likenesses and differences set up an entirely new system of general concepts, grouping the multiple individual observations in large harmonious units. But a deeper understanding of these and of the actual phenomena as a whole can only be attained through that law-bound relation which we usually call causality. This applies to physics and chemistry as well as to history and psychology; it is true of biology as well as sociology and philology. While thinking in the formal sciences only means thinking in likeness and differences, thinking in all the practical sciences, on the other hand, means both thinking in likenesses and differences and in causes and effects. And it is no overstatement to say that in all the practical sciences thinking and thinking in a causal or law-bound connection are largely the same thing. To *understand* a phenomenon here means to see it in some law-bound relation to other phenomena, as well as seeing it from the wider angle of the general concepts.

Even epistemology cannot advance one step beyond the noting of likeness and difference without resorting to some law-regulated relation. In the above account of the relation between the sensations and our capacity to find likeness and difference we make use of a law-bound relation or a causal explanation (p. 101 seq.). In the explanation maintained above of the origin of the concept of causation and the law of causality it is, as I have tried to show, new law-bound interrelations in the psychical field, which throw light on this subject.

Of both these latter basic elements of knowledge, our recognition of difference and likeness and of law-bound interrelations, it may be said that we cannot be sure that they give us any true knowledge of the world, of the so-called external and internal world, or, in short, of existence. But, on the other hand, it *cannot be proved*, either, that these basic elements of our knowledge are subjective, as was held by *Locke*, *Hume*, and *Kant*.

All that we can say is that the human mind conceives existence in terms of likeness and difference and those law-governed relations which we call causes and effects; but we have no knowledge whatever as to *whether* existence, the universe, at its core is such as is indicated by these basic elements of our knowledge. It *may* be that our conceptions of likeness and difference and law-bound relations are merely *subjective* forms in which our mind conceives the universe. But on the other hand it *may* also be that they give us a true picture of existence.

To be able to understand this main point it is necessary to be clear as to the *concept "reality"* and to examine whether it is used in *different* senses. In *Locke, Berkeley,* and *Hume* the term "reality" means *sense observation.* According to these philosophers all ideas are real which can be traced to sensations, either simple (red, black, hard, soft) or composite in the complexes we call things, whereas all ideas of relations between sensations (simple or complex) are inventions of our mind. On this view Locke and Hume consistently argue that both our conceptions of *likeness* and *difference, cause* and *effect,* and *space* and *time* belong to these ideas of relations. For the sake of brevity the italicised ideas of relations between the sensations will in the following be called *relations.* Both Locke, Berkeley, Hume, and Kant contrast them with the *sensations.* To the three English empiricists the concept of reality is equivalent to the sensations. In the latter, they thought, the concept of reality and the concept of experience coincide. The idea of red in a complex of other ideas is "real" because it coincides with our "experience" of things, that is to say, our sensations (simple or complex).

Kant, too, like his predecessors, draws a distinction between the sensations and the relations, but unlike the English empiricists he realises that the sensations and the relations cannot be kept apart in our experience. "Experience is no doubt the first product which our intellect brings forth, elaborating the raw material of the sensations"; and it is true that experience cannot give us general or necessary judgments; but nevertheless there are in our very experiences elements of knowledge of a general or necessary character; and these are, precisely, relations. Thus we cannot perceive by the senses except in terms of space and time.

And altogether, since our sensations incessantly occur in the relations and, as shown above, cannot be separated from them, the concept of reality with which we generally operate in science and in everyday life is equivalent to the sensations occurring in terms of time and space, likenesses and differences, and law-bound interrelations. These elements of knowledge, sensations and relations, constitute our experience of the

world. This concept of reality which coincides with experience I shall in the following call *reality* concept 1. But we know nothing as to whether this experience of the world, reality according to our conception, is identical with the world in itself, with absolute reality. The latter concept of reality I shall in the following call *reality* concept 2 or the absolute reality concept. *Locke* realised that there might be a difference between our sense impressions of things and the things in themselves. But the things in themselves, the external world, were abolished in *Berkeley*'s and *Hume*'s philosophy. *Kant*, on the other hand, drew a sharp distinction between the world in itself (das Ding an sich) that is to say, between reality concept 2 or the absolute, and our experience or conception of the world, reality concept 1, i. e. the sensations plus the relations.

Hence in the English empirical theory of knowledge in its most consistent form, that of *Hume*, the final result is *that* there is only one concept of reality. which is reality concept 1 minus the relations, i. e. the sensations alone; *that* we do not know whence the latter come, but *that* the relations, on the other hand, are in us, originate from the nature of our intellect; that is to say, they are subjective. Kant, on the other hand, as we have already mentioned, has both a reality concept 1 and a reality concept 2. He agrees with Hume that (a) our mind elaborates the sensations by means of the relations and that (b) the relations are subjective. But as he also admits absolute reality he maintains (c) that reality concept 1 or the sensations plus the relations, is altogether purely subjective; it does not represent reality concept 2 to us.

According to our argument above all three contentions a, b, and c, are alike incapable of proof. And thus the main point both in Hume's and Kant's theory of knowledge falls away.

Further, in my opinion, as regards our knowledge of the world, no difference can be made between the two basic elements: our conception of likeness and difference and our conception of law-bound relations. These so far as I kan see are equally well or ill supported in that respect. Thus we have no certainty whatever that our conception of likeness and difference gives us a truer knowledge of existence than our conception of law-bound relations (cause and effect). It is true that from the time of Locke and Hume up to our times epistemologists have been pretty generally agreed that a deep distinction must be drawn between our cognition of likeness and difference and our apprehension of causality, to the effect that the former gives us *certain knowledge*, the latter, on the contrary, does not. According to Locke's analysis in the second part of his work, only the sensations, simple and complex,

yield knowledge, namely of the single object we are observing at the moment, of its qualities. In the fourth part, which at any rate as far as large parts are concerned belongs to an earlier, more dogmatic period of his development, he includes in certain knowledge the observation of agreement or disagreement, of likeness and difference between our ideas. But according to the second part of his work sure general knowledge is only to be found in mathematics and the like, i. e. concerning the objects invented by ourselves, and it never applies to reality. As to the causal relation Locke is vague, but if he would be consistent he cannot but include this relation in uncertain knowledge, since it is concerned with reality (see Vol. 1 52-71, 119-126). Hume adopts the term sure knowledge from Locke but distinguishes clearly between relations of likeness and difference and the relation of cause and effect. Hume emphasises that there is a profound difference between the two propositions: (1) a is equivalent to b, and (2) a is the cause of b. They are both concerned with relations between two ideas, that is to say, complex ideas. But (1) furnishes sure knowledge, whereas this is not the case with (2).

Now, however, according to Locke all ideas of relations, both of likeness and difference and of cause and effect, are merely inventions of the human mind and do not reside in our sensations of things—Locke's concept of reality. The *general*, certain knowledge does not refer to reality. As Locke showed, we only possess that knowledge in the concepts of mathematics and logic which are independent of reality. But to be consistent Locke must maintain that all *certain knowledge* of relations, even between *single* instances, e. g., of likeness between two sensations, since it is an idea invented by our mind (an idea of a relation) does not apply to reality in Locke's sense of the term. Reality according to Locke is only the sense impressions of the external things, not the relation in which our mind places them to each other. But Hume to be consistent must maintain exactly the same thing, since he starts from the same suppositions, the sensations as a test of the validity of the ideas, as the concept of reality. Hume, indeed, in accordance with Berkeley abandoned Locke's idea of an external world, the thing in itself, as the cause of our sensations, but he did this on the basis of Locke's own suppositions. Since we have never seen, heard, or had any other sensation of the thing in itself, of an external world, apart from the sensations themselves, Locke, to be consistent ought to have rejected the idea of an external world as unreal. But though Hume merely acknowledges that our sensations arise from "unknown

causes", he still retains them as a test of the reality of our ideas. He and Berkeley reject the idea of a thing in itself, precisely because there are no sensations corresponding to this idea. And so do their successors in modern epistemology (thus e. g. Ernst Mach and Herbert Iversen). Similarly, Hume denies the reality of the idea of an internal necessary connection between cause and effect, since we only have the sensations as cause and effect, but no sensation of a necessary connection between them; the necessary connection is merely a subjective feeling in ourselves. But if Hume had analysed the relation of likeness as thoroughly and consistently as he did the causal relation, he must, as shown above, have maintained exactly the same thing about the connection: likeness between two sensations, as about the connection: cause and effect. Yesterday we had a sensation of a red object, and today we have another sensation of a red object. Thus the sense observation itself only shows us two sensations separate in time. That these two independent sensations resemble each other in that they are red is a connection between them which our mind establishes; this connection does not reside in the sensations as such, it resides in us. Like all ideas of relations between two sensations it is a creation, an invention of our mind. And as a matter of fact Kant, who on this point draws the final conclusions from Locke's and Hume's basic view, justly maintains on this basis that not only the causal relation but also the relation of likeness are subjective forms of our mind in which we sum up the sensations, the material of experience.

If then the relation of likeness is not more real than the causal relation—starting from Locke's and Hume's concept of reality, the sensations, simple or complex—there only remains their contention that the relation of likeness gives us *sure* knowledge, while the causal relation does not yield such knowledge. The term sure knowledge must presumably be kept distinct from the term reality, for mathematics furnishes sure knowledge, even sure general knowledge, but reality in Locke's and Hume's meaning, the sense observations, never furnishes such sure knowledge. In the same way Locke and Hume ought to maintain that the judgment concerning likeness about merely two single sensations furnishes sure knowledge, while as an idea of a relation it is merely an invention of our mind. Hume, as stated above, holds that the proposition: a is equivalent to b, yields sure knowledge, whereas the proposition: a is the cause of b, does not. From the mutual relations of two ideas we can safely pronounce a judgment concerning their likeness or difference (e. g. concerning their size or quality). But we cannot in

the same way from an idea which we call cause deduce with certainty an idea which we call its effect. As shown in my criticism of Stuart Mill's inductive philosophy, (in my book "Erkendelseslære og Naturvidenskab") the sureness of the judgment as to likeness is due to the fact that it is concerned with two *past* cases or with one past and one *present* case, while the causal conclusion, as Hume conceives it, is concerned with a present instance—the fire we see now—and a *future* case, a melting, as the effect to come.

If, however, we keep to a *past* causal relation, e. g. the melting of a metal which we saw yesterday as a result of the fire, we can say that a (the fire) was followed by b (the melting of the metal) with as much certainty as we can say that two sense perceptions c and d, e. g. a red rose yesterday and a red rose today had a resemblence to each other. Hume maintains that while a single case of c and d gives us knowledge of a likeness between them, a single case of a and b, on other hand, does not furnish us with knowledge of a causal relation between a and b. As I have tried to show in the foregoing part, this view cannot be maintained if we keep to our own experience. Merely a single case of a change in which we find the cause, and merely a single case of a cause which we see produce an effect gives us the idea of the necessary connection between them, as illustrated above. And involuntarily we ask about the cause as soon as we see—and see for the first time—a particular change.

Thus while we cannot, psychologically, accept Hume's view of the genesis of the causal relation and the concept of causality in our mind, we must on the other hand admit that, epistemologically, he is right in thinking that this concept of causality, this necessary connection which we assume merely from a single change, does not emerge from the sense observation itself. But, as I have shown above, this necessary causal connection is a human interpretation due to our experience of *pain* and *power*.

As has already been shown, a *single* experience of a change, when we have found the cause, i. e. the preceding change, at once gives us the feeling of a necessary law-bound connection, while repeated series of these two changes (cause and effect) strengthen our belief in this conformity to law. And a single experience of two sensations wholly or partly covering each other (e. g. colours) gives us a conception of likeness between them. But both experiences only give us a memory of a connection in the *past*, no sure knowledge of the future. And we cannot compare a law-bound relation such as the causal relation

with the relation of likeness in such a way that we in one of them, the relation of likeness, consider cases of the *past only*, but in the causal relation also those of the *future*.

Hence the only thing that remains of Locke's and Hume's view that our conception of the likeness of a and b is "certain" is that instinctively and clearly we experience, we "feel", this agreement between or this covering of a and b. But if we draw the final conclusions from Locke's and Hume's own conception it is obvious that this instinctively certain conception only yields us a subjective experience but no knowledge of reality (merely an idea of a relation). Likewise, even a repeated experience of a and b following closely upon one another in time and space, according to Hume only yields a subjective feeling of a causal relation between a and b, and no knowledge of reality.

As to the knowledge of the future we are absolutely unable to say whether a hitherto observed law-bound connection or causal connection, the following of the cause a by the effect b, will also occur in the future, for this implies that Nature will preserve the same regularity or conformity to law in the future as in the past cases, and as to that we have absolutely no guarantee. As to the relation of likeness we have in the first place no guarantee that the likeness we found between two objects a, which we saw yesterday, and b, which we saw today, will also occur in the future when we again observe a and b, for this too would imply a constancy or conformity to law in nature of which we have absolutely no guarantee or knowledge. But even if we keep to the purely psychical aspect, we have absolutely no guarantee that we shall at any time in the future have two or more sensations which resemble each other. No one has assured us that the whole universe including ourselves will not one day be a complete chaos. We believe that the conformity to law which we have thus far experienced in nature will also appear in the future: but it is and will always remain a mere belief.

As already stated, Locke's and Hume's epistemological criticism of our conceptions likeness-difference and cause-effect as relations between sensations which are created by our own mind, is based on sense observations as a criterion of reality. Kant too considers these relations subjective but regards them as necessary components of all our experience, of all reality in that sense of the word which I have above called reality concept 1, i. e. experience. But all our cognition (both sensations and relations) is according to Kant subjective in reference to the world in itself, reality in the absolute sense, reality concept 2.

As previously pointed out, none of these views is right. As I have tried to show above, our sensations cannot be separated from our distinguishing and comparing; and just as our sensations always occur in likenesses and differences, so also they incessantly occur in law-bound interrelations in all changes which we call causes and effects in everyday speech as well as in the specialised sciences. Thus likenesses and differences as well as law-bound relations in the changes are just as much a part of our experience, of reality in the usual sense of this word, as the sensations themselves. But as to whether this reality concept 1 covers the absolute reality concept 2, the thing in itself, or whether it is subjective, we are totally ignorant. Kant's contention that concept 1 is purely subjective as compared with concept 2 is incapable of being proved.

As to the causal relation Hume maintains that reality concept 1 merely shows us a constant succession of or interrelation between the sensations we call causes and effects but no necessary relation or connection, while Kant contends that this necessary connection, expressed in the law of causality that every change has a cause, is an inseparable element of reality concept 1, a general and necessary form of thought in all our experience, whereas it does not apply to reality concept 2. Hume is right in thinking that reality in sense 1, experience, only shows us a hitherto noted regular succession of or law-bound connection between the sensations which are called causes and effects in everyday speech, but no necessary generally valid connection. But Kant is right in his contention that as soon as we observe the phenomenon change we instinctively look for a previous phenomenon with which the change is connected in a way governed by law, and which we usually call a cause.

Altogether, Hume's conception of the cause as one sensation and the effect as another does not cover the usual psychic relation but merely the comparatively smaller field where we start the events ourselves, as when by approaching fire to lead we make the latter melt. As I have tried to show in the foregoing part, the principal fact in nature, the thing we first observe, is the *change*, or successive changes, that is, a whole series of sensations, but these are what are usually later called the *effect*. When in modern natural science we proceed to look for a "deeper cause", it turns out to consist merely in other changes, namely in movements; "the cause" for instance of all the changes we call heat phenomena—melting, congelation and the like—being motions of the molecules. No "cause" of these latter motions in the universe, or indeed

of any motions in the universe can be demonstrated by experience, reality concept 1, for only a force can come into question as the cause of the motions, but we do not observe forces in our experience (apart from our own muscular force) but only the motions.

Of Hume's two concepts *cause* and *effect only* the *latter remains*, and it would be better in future to call this *"change"*, since it must be independent, must be detached from the cause.

All that experience, reality concept 1, shows us is merely a certain *law-bound connection between the changes.* But this law-bound connection in the universe, like the likenesses and differences in this universe, is among the ultimate basic elements of our knowledge and perhaps also applies to reality 2, the thing in itself. Whatever new explanation we would seek to apply to the motions in the universe we must in any process of understanding everywhere apply and rely on these two ultimate capacities for knowing.

The likenesses and differences and law-bound connections between the sensations also determine the order in which they appear in our consciousness, namely time and space.

All our experiences, both the so-called inner and the so-called outer ones, only occur in our consciousness in the peculiar series which we call time. Time is conceived through an image derived from the surrounding world as a stream of experiences at the individual moments, of sense-perceptions, internal organic sensations, ideas, feelings, etc. But we should never get this idea of the succession of the experiences if we did not first distinguish between the various different sensations and the like, and then amid all the differences also found *likenesses* which give rise to recognition and memory of past experiences. And without the memory of past experiences we should have no idea of time. Nor would our idea of space arise without a conception of likeness and difference; and in addition conclusions from law-bound connections are required. Even though the nativistic theory in modern psychology may very likely be right in thinking that sensations give us not only an impression of surfaces and their contours but also a certain impression of depth, *Berkeley* at any rate is right when he says that our conception of space in its entirely and full extension is largely due to the conclusions of our intellect. Berkeley has not stated in detail in what these conclusions consist; but so far as I can see they are

conclusions drawn from likeness and difference and from law-bound interrelation. By distinguishing between visual sensations and sensations of motion and touch we observe that in order to be able to associate tactual sensations with certain visual sensations (to be able to touch an object which our sight shows us) we must first go through a series of sensations of motion, that is to say, by our muscular power we must set our body in motion towards the visual image. And by comparing a set of sensations of motion and touch associated in the above-mentioned way with a particular visual image, with another set of sensations of motion and touch associated with another visual image, we receive a strong and deep impression of distance, and of various distances, and gradually of space in general. And in our use of various degrees of muscular power to obtain various motions of our body with succeeding tactual sensations there is a law-bound interrelation which we utilise and calculate beforehand with greater and greater accuracy.

4. SENSE OBSERVATION, AND THE OTHER FACULTIES OF COGNITION.

As stated above, *Locke*, *Berkeley* and *Hume* thought that the concept of reality was equivalent to the sensations, and that all ideas of relations such a time and space, likeness and difference, cause and effect, which cannot be derived from the sensations, must therefore be regarded as inherent in us, as created by the special form of our mind. *Kant* had the same fundamental view as his English predecessors. In his opinion too the sensations are the material we receive from without, while space and time, likeness and difference, cause and effect are subjective forms of conception in ourselves.

Thus the characterisation of this conception of our cognitive process as "*Element Psychology*" applies not only to Locke, Berkeley and Hume, the so-called empirical English school, but just as much to Kant who adopted the fundamental view of the English school in that respect; and as already shown, the error of this 18th century element psychology by no means consisted in the English school overlooking the presence in our cognition of much more than the elements, the sensations; for the English school as well as Kant very strongly stressed that besides these elements of cognition there was in our whole consciousness this activity of combining, arranging, and elaborating the elements, what Hume called "the uniting principle"—to him a fundamental law of consciousness—and what Kant called "synthesis".

On the other hand, there was a certain onesidedness in this 18th century psychological conception in that it *drew too sharp a line between the sensations* on the one hand *and* the psychological process which we encounter in *the relations*, likeness and difference, law-bound interrelation, and time and space, on the other hand. The sensations were regarded as elements which were first present and were then afterwards by our mind united into larger units by means of the relations. Hence in so far the term element psychology is adequate. The combining process of the relations was conceived in much the same external way as when we look upon a craftsman in reference to the materials of which he shapes and builds a house or other object. This analogy is actually an abstraction that keeps sharply apart phenomena in close organic connection. No doubt it first arose as the fruit of an abstract thinking which started when the earlier philosophers in antiquity, but especially in the time of the Renaissance, introduced a distinction between sensing and thinking (sensus et intellectus). The whole of this view aims at showing that we receive the sensations passively as a material which our mind then actively elaborates.

This conception is justified in a very limited field only. As demonstrated above, the sensations cannot be separated from our conception of likeness and difference. Furthermore, the sensations incessantly occur in those law-bound interrelations which pervade all changes. Moreover, as a rule they occur in relations of time and space. Actually it is only when we get to the ideas—that is, the copies derived from the sensations which we retain in our mind, even after the sensations have ceased to exist,—that we can sharply distinguish an elaborating activity of our mind from the ideas as elements, namely partly because our imagination freely combines many different elements of ideas, and partly because we unite numerous individual sense images (e. g. of various animals) into general ideas (the idea "animal").

The sensations and the relations (likeness and difference, law-bound coherences, space and time) constitute an inseparable combination in our experience; and as previously emphasised, we lack all justification for drawing a distinction between the sensations and the relations as compared with reality (both 1 and 2), and for Locke's, Hume's and Kant's assertion that the relations are subjective. As will be shown later, an analysis may be given of the individual sensations and of the individual relations. But this analysis runs counter to the distinction between the sensations and the relations.

CHAPTER 7

THE BASIC DELUSION.

In several places in the foregoing chapters I have tried to throw light on the peculiar error in scientific method which was committed not only in 18th century but also in 19th and 20th century epistemology and which I tried to characterise in Chapter 5. As a provisional characterisation I called this scientific error a gross circular conclusion. The danger of it is that it it so deeply ingrained in the process of thought and so occult that even the most acute epistemologists have not hitherto discovered it but unconsciously commit it themselves, using it as a basis or foundation in their work. The error is that the epistemologists, trying to solve the problem of knowledge, without being aware of it, operate with concepts and relations which they either (a) should first have proved or (b) have even come to regard as unreal in the course of their investigation.

It is difficult to find a word that will actually cover this fundamental error in scientific method. The word circular conclusion or circularity does not cover it; it only refers to a. The error as a rule lies still deeper. Without being aware of it, the investigator unconsciously applies to his reasoning in the whole investigation something which the investigation itself disproves or undermines, b.

This entire hidden methodical error a and b might be characterised as *a delusion inherent in the foundation of the theories of knowledge.* But for brevity I will in the following call this delusion or error in the foundation of all previous epistemological theory: the *basic delusion,* a may justly be termed a circularity or circular conclusion (a petitio principii). But b which is more fundamentally destructive to a theory of knowledge may perhaps best be called a self-destruction of the basis or a basic delusion in a narrower sense. The epistemologist, without knowing it, slips into a strange way of thought; in his investigation

by means of certain forms of thought he undermines the very same forms of thought. The result of this epistemological self-destruction or basic delusion is in all cases that the entire inquiry actually has not got anywhere, so that we shall have to begin over again.

As far as I can see, it was the failure to recognise this curious delusion which brought the great 18th century epistemologists up against an insuperable barrier and landed them in self-contradictions and an unsettled controversy about the method of epistemology, just as it is the reason why their 19th and 20th century successors have not advanced a step beyond these thinkers but still move along the same paths closed to thought, and to this very day have not solved the problem as to the method of epistemology.

The basic delusion can be traced deep down into the thought of the four great epistemologists; and so thorough and penetrating are these thinkers' researches that the channels of thought into which they directed epistemology have actually determined all later thinking down to our day. The two main schools of philosophy in the 19th century, Romanticism and Positivism, both represent a retrograde step in epistemology, and they were but shallow compared with the philosophy of these leading minds of the 18th century. And when epistemological thinking was resumed in more or less close association with the new natural science at the close of the 19th and the beginning of the 20th century by men such sa Mach, Kromann, Meyerson, Russel and Iversen, they began with Locke's Berkeley's, Hume's and Kant's presentation of the problem. And, as shown above, they largely follow the narrow lines of reasoning of these epistemologists, hence they have also run foul of the great problems such as causality and the problem of the external world. And in the problem of epistemological method the dispute that arose between the empiricist and the a priori school over the contrast between Kant's and his English predecessors' methods, is not yet settled.

I shall now briefly sum up the chief cases of basic delusions which I have demonstrated in more detail above.

Locke, agreeing with Galileo, regards certain sense perceptions as secondary (the subjective sensible qualities: colour, sound etc.), though this view can only be arrived at by the use of causal connections to which according to his own starting point and his investigation he denies reality ("relations" are "inventions"). He commits the same mistake when he regards the thing in itself as the cause of our sensations though such a causal relation, like all other results, according to his

own examination is purely subjective and therefore cannot in any way be applied to the thing in itself. And Hume's dealing with objects and unknown causes is on a line with this, for his own investigation denies all reality both to the idea of objects and to causality.

The basic delusion, however, penetrates far deeper into epistemology than in these cases. When Locke, Berkeley, and Hume distinguish between the various elements of knowledge and group them in sensations and ideas and relations, and when they further derive ideas from sensations, and finally oppose an ordering, elaborating activity of the mind to the sensations as material, they are incessantly, in all this distinguishing, grouping, derivation, and the notion of arranging and elaborating, making use of the relations likeness and difference, cause and effect, which in the very same investigation they admit or, if consistent, must admit to be unreal (above pp. 82 ff.).

As pointed out above, no difference can be made in that respect between our conception of difference and likeness, or logical apprehension, on the one hand, and our conception of law-bound relations, our knowledge of causality, on the other. Both, according to Locke and Hume, are subjective as ideas of relations. If Hume had at this point fully realised the radical consequence of his and Locke's standpoint, he would have ended not only in scepticism as regards the idea of the external world and the causal relation, but also as regards the simplest relations of likeness, as regards logic, the ultimate foundation of all science. If he were to be consistent Hume should never have written his chief work, for he would not have been able to justify its brilliant logic since it is not derived from any sensation. All his acute psychological and epistemological arguments in the "Treatise on Human Understanding", on time and space, causality, and other relations, and on the external world, are in the last instance nothing but an emphasising of likenesses and differences and causal relations in the mind, i. e. merely relations inherent in ourselves, in our belief or imagination, not in the objects, not in reality. Hence, if Hume could merely through his logic, his apprehension of likeness and difference, a relation, arrive at a denial of the existence of the external world and of the causal relation, then all this denial is actually only due to an "inner feeling"; and the external world and its causal relations thus remain quite unaffected by the whole of this acute reasoning and all his penetrating arguments. If the external world and its causal relations are to be swept away as unreal it must be done in quite another way, by an entirely different scientific method; at any rate they

cannot be swept away by Hume. In other words: with the whole of Hume's comprehensive investigation we have not advanced one step.

Kant's basic delusion refers to another point. It cannot be objected to Kant that he makes use of the relations in his a priori logical epistemology, for he realises that we cannot think or have any experience at all without the relations (forms of perception and understanding). They yield no absolute knowledge of the truth, no knowledge of *das Ding an sich*, which in the preceding part I called reality concept 2, and so Kant's criticism of knowledge, his Kritik der reinen Vernunft, cannot, either, afford any knowledge of the truth in this sense. But it is Kant's opinion that since the relations are our own subjective forms of knowing, not coming from without like the sensations (the raw material) but a priori, i. e. latent in the structure of our mind before we have any experiences at all and necessarily and fully marking all our experience when we have such, they give us an absolutely valid knowledge (of reality 1); and his criticism of knowledge must therefore also be valid a priori, prior to all experience, a complete obvious self-knowledge which a priori, eternally valid, affords a complete view of all our forms of perception and understanding (Kant IV 69 f. III 9 f. 547 f.).

As already stated, Kant is here guilty of (1) a circular conclusion. He takes for granted what he was first of all to prove, namely that a sharp distinction can be made between the sensations and the relations, sensing and understanding ("Sinnlichkeit und Verstand"), that the sensations come from without while the relations are inherent in us and do not apply to the things in themselves. Since none of this can be proved Kant's whole structure of thought falls to the ground.

But (2) Kant also gets involved in a destruction of his basis or in a basic delusion in a narrower sense. The most decisive proof in my opinion is that Kant can only arrive at the thing in itself as a contrast to the world of phenomena apprehended by us, that is to say, at a difference between reality concepts 1 and 2, through our power of distinguishing and comparing, our cognition of the fact that there is something different from something else. But according to Kant our cognition of *difference* and *likeness* also belongs to the subjective forms of our intellect, thus it only applies to the world of phenomena, reality concept 1; and so he can never from his own standpoint, his own premises, arrive at das Ding an sich, reality concept 2. In the second place we may further add that after first drawing a distinction between realities 1 and 2, Kant in addition establishes a relation of causality between 1 and 2, the sensations being said to come from without, from "objects that touch our

senses" Kant III 27. But the causal relation also belongs to those subjective forms of our intellect which only apply to the world of phenomena and cannot in any way be concerned with das Ding an sich. But this latter basic delusion is in my opinion not so decisive as the former. For the latter, *das Ding an sich* in a causal relation to the sensations, would never come into existence at all if Kant had not first through the subjective form of our intellect, our conception of difference and likeness drawn a line between two worlds, the world of phenomena, reality 1, and the noumenal world, reality 2. The decisive basic delusion then is that Kant bases his fundamental epistemological distinction between the unknowable world, the world in itself, and the world conceived by us through the a priori forms of our intellect on one of these subjective forms, the apprehension of difference and likeness. The distinction through which the thing in itself first comes into existence, and thus the thing in itself, has been undermined at the outset. Hence both Hume and Kant by their own investigations arrive at results which destroy the foundation of their own investigations.

The modern epistemologists who resume the line of thought from the great 18th century thinkers, like the most consistent of these, Hume, regard knowledge as a series of different mental experiences or states succeeding each other in time; the causal relation is merely repeated constant successions of experiences; the things of the so-called external world are also merely such successions; and the notion of an external world as different from the human mind's own experiences is unfounded. The most consistent of the recent epistemologists, Mach and Iversen, agree with Hume in this fundamental view. Mach's new contribution beyond this, his theory of cognition as an adaptation (in Darwin's sense), is in fact only another form of the ordering, elaborating activity which the English school and Kant attributed to the mind; and it therefore rests on the same basic delusion as the conception of these thinkers. More closely inspected, Mach's "adaptation" implies a deeper causal connection and in fact also a difference between an outer and an inner world; but both these points are quite incompatible with his own epistemological investigation. (book 1 260 seq.).

Iversen, like *Hume* (and *Mach* after him), at first assumes series of different mental states but consistently comes to realise that ultimately all reality, which, as we saw, was equivalent to experience in us, is experience at this moment; even memory and even thought of the future, all is *an experience in me at this moment.* However, it is impossible to describe, explain, or briefly know this sole experience of man, for all

description or explanation can only take place by means of other past mental states which properly speaking do not exist, or which at any rate at bottom we do not know. A mental condition cannot describe or explain itself; it simply *is;* there is nothing to explain or know about it. With this all knowing has ceased. Hume is undoubtedly the most consistent of the old school of epistemologists. But the clearest analysis of Hume's standpoint, as shown by Iversen's investigation, leads us to the result that all scientific knowing is impossible. Our conception of *likeness*, recognition, cannot, according to Iversen, be retained as reality, for likeness is a relation between two mental states, and reality is only one mental state. But this standpoint, the single experience, which Iversen regards as the safest, most certain, and indeed the only standpoint, and which cancels all knowing, is in my opinion due entirely to a basic delusion. It is, however, so well concealed that Iversen, in spite of all his astuteness, did not discover that he had succumbed to it. Iversen did not see that it is not only likeness, recognition, which is a relation between two mental conditions; the same applies to the *difference* between these. Iversen has not given sufficient attention to this phenomenon: *difference*, without which we should not have any experience at all. But even Iversen's single experience or mental state would never have been experienced by him except as something different from another previous mental state and containing simultaneous differences. A mental state is hardly ever a single entirely unchanged condition lasting for several seconds (or merely fractions of seconds). Visual sensations, sounds, and the like are changing all the time; and even if the so-called external surroundings are unchanged for several seconds there is an incessant change in our inner state of organic sensations, feelings, moods, ideas, thoughts etc. And through the manifold changes in the environment, be they changes of position, movements, or changes in objects (the wind moving the leaves of the trees, the river flowing, the movement of a cart, the melting or burning of objects), our experience is not a sharply isolated snapshot of these changes in a second or a fraction of a second, but sensations of a gradual transition of differences and likenesses through several seconds. Our experiences, sense-perceptions or internal sensations are inseparably associated with the phenomenon of change (in or outside ourselves) and with it our conception of difference and likeness. But *even if* it were possible to distinguish between my experience now at this moment and my simultaneous feeling of the difference of this experience from my experience a second ago, Iversen has no epistemological reason whatever for denying reality to the experience of a second ago. For we have no

certainty that my simultaneous feeling of difference from my experience now is less true than this experience itself. We can no more criticise the difference of one sensation from another than we can criticise the sensation itself.—Finally it is a matter of course that Iversen would never have arrived at his standpoint by this thorough psychological analysis except through long series of ingenious conclusions and discoveries of differences and likenesses. Without his logic, that is to say, without his sharp recognition of likeness and difference he would not have been able to think or write a single line of his work. Through this logic he has little by little dissected out his single experience at a particular moment; this experience is actually the abstraction from a natural context of a single link in it, to which only the faculty of finding difference and likeness can lead him. Altogether, Iversen's opposition to the recognition phenomenon, to similarity between two mental conditions as a relation between the single experience and a previous one, which on his view does not exist, consists precisely in that logic, that finding of likeness and difference, that is to say, the relations which he himself challenges. He is therefore a prey to the same basic delusion as the rest of the epistemologists.

If, as I have tried to prove in my investigation above, I am right in my contention that 18th, 19th, and 20th century epistemology has unconsciously been founded on a series of basic delusions, this means that all the results and theories which epistemology has now attained by its very method and basis are one long series of self-destructive acts; and modern epistemology therefore, in spite of all acute psychological and epistemological considerations of great philosophers, of Locke and Hume, Kant and Mill, Mach and Meyerson, Iversen and Russell and several others, has only been marking time. Hence we must begin over again, start a fresh inquiry, free and untrammelled by all previous theories, rooted distinctions and syntheses, or traditional views of the forms of cognition.

THE SPHERE OF THAT WHICH CANNOT BE PROVED

Much fallacious reasoning and confusion might have been avoided if a sharp distinction had always been drawn in philosophy between that which can and that which cannot be proved. The sphere of the undemonstrable is immense, and there is full scope here for every conceivable speculation and system. A very large part of philosophy comes within the sphere of the undemonstrable, from the Greek natural philosophers', Spinoza's and Leibnitz' to Kant's and his successors' systems. But even

the English empiricists cannot be absolved of basing their philosophies on suppositions incapable of proof. The previous epistemology, empirical as well as a priori, as we have shown above, relies on a number of undemonstrable assumptions. Thus it cannot be proved that a sharp line must be drawn between sensations and relations, that only the former come from without, from causes outside ourselves (unknown causes, das Ding an sich), and that the latter come from ourselves, from the structure of our mind. Further it is incapable of proof that sensations and relations, the former or the latter or both, do not give us a knowledge of the world in itself (reality 2); but it is also incapable of proof that they give us such knowledge. We know nothing about it.

Nevertheless epistemology has for centuries turned upon these undemonstrable assumptions; the most elaborate efforts have been made, and tremendous quantities of philosophical literature have accumulated in the 18th, 19th, and 20th centuries concerning the problems contained in these postulates. Of course the psychological inquiries in the works of *Locke, Hume, Kant* and the more recent epistemologists have not lost their value. But very large parts of Locke's and Hume's works, of Kant's principal work Kritik der reinen Vernunft and of the more recent epistemological works are speculations on theories in the sphere of the undemonstrable. This applies altogether to the many philosophical works which saw the light among the conflicting schools that followed in the wake of the great 18th century epistemologists (empiricists, Kantians, Neo-Kantians and others) both in the 19th and 20th centuries.

All this immense literature is then actually a quite futile speculation on possibilities of which one may be as good as the other. And no solution is possible, since any choice of one of these possibilities lies quite outside the limits of our knowledge. All Locke's, Hume's, and Kant's meditations on the presumed different position of the two components of our knowledge has been a thinking to and fro since, as we have pointed out, it must actually be admitted that it is both impossible to prove that the sensations or the relations or both of them do not yield a knowledge of the world in itself, and to prove that they yield such knowledge. Since the whole basis of the investigations and reasoning of these thinkers is wrong, namely their assumption that only the sensations come from without, not the relations, the distinction between the two components of our knowledge falls away in that respect; and with it their distinction between matter and form, Kant's distinction between a priori and empirical, and all the theories and assertions connected herewith.

When we consider the number of abstract speculations and subtle reflections, especially in German philosophy, which these distinctions have started, we shall realise that the lack of a sharp delimination of the sphere of the undemonstrable here as elsewhere has brought the greatest quantities of abstract philosophical literature into the world in vain, to no purpose. The most recent epistemology is based on the same error of method. Thus when amongst others Mach and Iversen, continuing Locke's and Hume's line of thought, regard the series of sensations or experiences, or even a single experience, as reality, and form their judgment of the connections between the sensations, of causes and effects and finally also of likenesses and differences, on this basic, this is again the undemonstrable postulate from 18th century philosophy about the gulf between the sensations and the relations, which is behind this. It is still "matter" and "form" which unconsciously dominate the minds of the thinkers.

CHAPTER 8

IS A KNOWLEDGE OF THE NATURE OF KNOWLEDGE POSSIBLE?

What Locke, Berkeley, Hume and Kant, and all epistemologists after them, have tried to do is to investigate the nature of knowledge. But this investigation is itself knowledge; therefore, as shown above, it makes use of the same means of knowing as all other knowledge, namely the elements of the relations, of likeness and difference, time and space, and causual interrelation. When, however, epistomologists so far, both the English empiricists and Kant and their successors, in their apprehension of knowledge arrive at the result that the relations are inventions of the mind, are the mind's subjective forms, then epistemology, as already shown, becomes a circularity, a self-delusion, and a series of postulates incapable of proof.

The question is, however: is a knowledge of knowledge, is a criticism by means af knowledge of the fundamental concepts and limits of knowledge possible at all? How can knowledge criticise itself?

So far as I can see, this is only possible because human knowledge does not depend on a single faculty, a single means of knowing, but on an interplay between a number of different faculties or means of knowing. Thus our knowledge depends on the fact that we can sense, that we can have a number of qualitative sense impressions such a colour, sound, pressure and the like; but it also depends on the faculty that we can find our way among these impressions by means of space and time; further it depends on the faculty that we can recognise difference and likeness between the impressions, and that through this and in other ways we can find certain law-bound relations between them. If human knowing only consisted of a single uncompounded faculty, all criticism of knowledge or epistemology would be impossible. But precisely because our knowing consists of a whole series of different faculties or means of knowing, roughly called sensations and relations, it is possible to throw

light on and scrutinise some by means of others and to find their mutual limitations. But the difficult problem is to discover the proper *method* of this internal criticism. This is the most difficult problem in all epistemology.

It is easely understood, considering the human desire for simplification, that we chose a *single* faculty of cognition and criticise all the others from that angle. But in my opinion this is a methodical error which involves fatal consequences and leads thinking into an impasse. So far as I can see it was into such an impasse that the 18th century epistemologists led thinking, and out of this it has not moved since: hence the dispute between empirical and a priori schools has become insoluble.

When *Locke, Berkeley, Hume,* and *Kant,* without first discovering this problem, unconsciously selected a single faculty of cognition as the fundamental one, they instinctively chose sense observation, taking this as their fixed point of departure and judging all the other means of knowing, the relations, from these. The reason was no doubt that, on the intuitive view of the plain man, sense observation represents reality. We arrive at this idea of reality quite simply because we learn to regard the figures formed by our imagination, centaurs, naiads, our dreams etc. as unreal since they do not accord with sense observation. Their origin is a guarantee of their reality or the reverse. As the sensations are supposed to come from a reality external to ourselves, an external world, they represent this external reality to us, whereas the figures of the myths and fairy tales are created by ourselves, by our imagination. But from this simple view of reality the epistemologists little by little came to test all our other, complex ideas, a thing or a substance, space, time, causality, likeness and difference, on the basis of the same criterion of reality. In this investigation Locke, Berkeley and Hume gradually discovered to their great astonishment that even these complex ideas, the relations, were not derived from the sensations and were thus unreal compared with these as a criterion of reality. Locke attempted a criticism of a certain group of sensations (the sensible qualities, colour, taste and the like); but Berkeley and Hume rejected this criticism as it was based on a number of inferences from temporo-spatial causal relations, i. e. from our mind's subjective forms. They did not realise that the same epistemological viewpoint struck at their own criticism of ideas of thing (or substance), cause and the like. Unconsciously they walked into the trap which the whole of their above-demonstrated basic delusion is. Kant realised that the relations are necessary components of our ex-

perience, that they belonged equally with the sensations to what we in everyday speech call reality or the external world. But he too regarded the relations as subjective forms. During the development of the whole of this reasoning it became clear to the epistemologists, Locke and Kant as well Berkeley and Hume, that the sensations also did not acquaint us with the things in themselves, the external world as it really is. The consequence of this was that the sensations too, all without exception, were only subjective. With this the original starting point, the original concept of reality, the sensations apart from the relations, had abolished itself. Two reality concepts had thus come into existence, one, the usual common and scientific one, called above reality concept 1: the world shown to us by sense observation in the relations (Kant's Erscheinungs- and phenomenal world), and reality concept 2, the world, the thing in itself.

Briefly, the earlier epistemology's treatment of the reality concept may be expressed thus:

First the sensations without the relations are chosen as the reality concept. The result of this is that the relations are regarded as subjective. Finally it is realised that the sensations too are subjective. So the former reality concept 1 disappears and a transition is made to reality concept 2, the world in itself. Our entire knowledge then becomes subjective. But this result has been attained by the very same faculties of cognition which are deemed subjective both in reference to the first and to the last reality concept. This again means that in spite of all our efforts we have not advanced one step in our criticism of knowledge, in our knowledge of knowledge. Epistemology has entirely cancelled out itself and all its results by its own method, namely by making use of faculties of cognition—the conception of likeness and difference, cause and effect—in spheres in which epistemology itself must regard them as inapplicable.

The entire view that our knowledge, or part of it, is subjective, that our intellect possesses a priori forms, implies the concept of reality, something external to ourselves. But whence is this fundamental concept of reality derived? Our concept of reality is of course due to our apprehension, to one or several of our faculties of cognition. Since, however, the concept of absolute reality, reality 2, is derived from a faculty of cognition, the latter cannot surely be held to be subjective. For the very concept "subjective", the concept "a priori" presupposes the reality concept. It is the greatest contradiction in Hume and Kant that the fundamental concept itself, reality—which is the point of departure and basis of their whole teaching of what is "inherent" in us, subjective,

and what comes from without—proves itself to be subjective, as a consequence of their own reasoning.

We can found no science without first being clear as to its method. But according to the above, epistemology has not yet attained clarity as to its method. This appears alone from the still unsettled controversy between the empirico-psychological and the a priori schools. Hence epistemology has not arrived at stable results. But the question then arises, what is the correct method in epistemology?

The only reason why epistemology has landed in basic delusions and a baffling dispute between various schools, is in my opinion, firstly, that it has not had a *comprehensive* and *systematic* method of estimating the *mutual importance* of the various faculties of cognition in their internal interplay. Instead, a single factor, sense observation was onesidedly selected as the basis of criticism of the other faculties of cognition and the consequence was that described above: in the last instance, the abolition of all knowledge.

The choice here made was not only (1) *onesided*, but also (2) *unsystematic*, almost casual; or rather, epistemologists chose the first factor at hand, that which, popularly, is equivalent to reality, namely sense observation.

If we sum up the results of the preceding inquiry we may, as far as I can see, if we are to avoid the mistake of the earlier epistemologists, establish the following principles for the method of epistemology:

1. Since human knowledge is dependent on the interplay of a number of different faculties of cognition: our sense observation, our conception of time and space, our so-called apprehension of causality, our conception of likeness and difference,—the object of epistemology will be to discover the true interplay between these factors and establish their mutual relation and limitation.

If epistemology is to give an internal criticism of the various faculties of cognition the implication is that these can critically elucidate each other.

2. We cannot select *one* out of the hitherto assumed faculties of cognition and, notably, not sense observation as the only foundation for our criticism of the others.

3. On the other hand, by means of some faculties of cognition we can critically evaluate the others.

In the course of such a mutual criticism in which some faculties of cognition are opposed to others, we can arrive at the true interaction between the various faculties of cognition, can find our way to the true

co-operation in the whole process of knowing. The individual faculties of cognition must subordinate themselves to the whole: in this way we arrive at the true correlation between them.

4. First and last, we must apply the methodic principle of not criticising any faculty of cognition by means of faculties which we must from our own point of view regard as inapplicable in the field we are criticising. The basic delusion.

Among faculties of cognition or factors of knowledge we include sense observation, time and space, likeness and difference, and causality. But actually we must add one more factor which, strange as it may seem at first sight, is also a factor of knowledge. This is our so-called inner experience: feelings, passions, resolutions of will, for by distinguishing between this experience and our sense observations we draw a line of demarcation between an external world, or reality, and an inner world which is of the greatest importance for our knowing.

For the sake of brevity I shall in the following call our conception of likeness and difference factor 1, our conception of law-bound relations, factor 2, time, factor 3, space, factor 4, our sense observations and the so-called inner experiences (feelings, decisions and the like) respectively factors 5 and 6.

All these factors, 1—6, are necessary components of our knowledge, also of our criticism of knowledge. Some of them are in a certain sense more universal than others. Thus factors, 1, 2 and 3 are more universal than factor 4 (space), for the latter is limited to sense observation (5), while factors 1—3, likeness and difference, causal relations, and time apply to all experiences, 5 and 6, both to sense observations, and the inner experiences, feelings, resolutions and the like.

Factor 1, our distinguishing and comparing, in a narrower sense the logical faculty, is more universal than factor 3, our conception of time. For outside the inner experiences time is limited to space, is inseparably associated with the motion of parts of matter; and a distinction can be made between matter and space apart from matter, i. e. empty space (cf. book I 313—16). Finally, there is a knowledge, which is independent of time, namely mathematics. But for that too factor 1 is valid; indeed, mathematics is predominantly dependent on this factor.

Factor 1 cannot be dispensed with in any of the other factors of knowledge; it enters as a necessary component into all of the factors 2—6, as was shown above. In order to establish causal relations, factor 2, we must first distinguish between the individual components in these relations,

the so-called causes and effects, and compare them, the same series recurring again and again; that is to say, there are *constant* similarities. But without factor 1 factors 3 and 4 are also inconceivable, as was pointed out above; and the various sense observations and other experiences, 5 and 6, likewise only come into existence through factor 1. Factor 2, like factor 1, is also indispensable in the formation of 3 and 4, time and space; and it dominates 5 and 6, see above p. 101 seq., 130 seq. But the causal relations seem only to occur in time (in series of the so-called causes and effects); and in so far factors 2 and 3 seem to be equally universal.

Within the so-called relations (factors 1—4) we may thus in a certain sense talk of more or less universal factors or faculties of cognition. 2 and 3 are more universal than 4; and 1 is more universal than 2 and 3, since it also dominates mathematics which, on the other hand, needs neither 2 nor 3.

If we pass on to 5 and 6, and if we take both these groups, all our experiences *en bloc*, they are of course just as universal as factors of knowledge as 1—3, for all relations are merely combinations, connections, between our experiences; and these connections and our experiences cannot be separated, as was shown above. But it must be pointed out that though mathematical knowledge is of course also an experience in us in time, it can merely in thought, i. e. by means of factor 1, be separated from all experiences in time and causal relations. In so far then factor 1, both in reference to relations and experiences, is the most universal faculty of cognition.

By means of factors 1 and 2 and their operation with the various experiences we are able to criticise closely the rest of the faculties of cognition. Thus we may criticise the sensations, factor 5, and assert that a group of these—colour, sound and the like—are subjective. As previously shown, this criticism is only possible by ascertaining numerous cases of *differences* and *likenesses* and law-bound interrelations between the sense observations. Our conseption of time and spacee too, factors 3 and 4, can be critically elucidated, as *Berkeley* already did in the case of space; and the limitation of the field of application can be established. But all this criticism and limitation is only possible by means of factors 1 and 2, through differences and likenesses and law-bound relations.

The apprehension of causation too, in the earlier sense, can, as previously shown, be made the subject of criticism. If the concept of cause,

and the concept of force must be abandoned, this criticism too is only possible through the finding of sharper and more profound differences and likenesses and law-governed relations between our experiences than have previously been conceived.

There is therefore reason to examine in more detail these two universal factors of knowledge, 1 and 2, and their significance for our cognition.

1. DIFFERENCE AND LIKENESS

According to the above, the most universal faculty of cognition is our *apprehension of difference and likeness*, factor 1. We cannot advance one step in any knowledge or apprehension in the formal sciences such as mathematics or in the practical sciences such as natural science, history, and psychology, without this faculty. And we cannot make merely the first advance, even the very smallest, that we attempt in epistemology without the aid of this, the most fundamental of all prerequisites of knowledge. Our first gropings in a criticism of knowledge are a *distinction* between various elements of knowledge, sensations, ideas, space and time, causes and effects etc. and a *comparison;* for these elements as *groups* cannot appear at all in our consciousness unless we have found numerous *likenesses* between the elements. And when we try to criticise the other faculties of cognition, e. g. our apprehension of causation, it can only take place by our distinguishing between parts of this apprehension, namely that which is concerned with *past* causal interrelations and that which infers *future* observations of causes and effects, and by distinguishing between *external law-bound relations* and *inner forces*. Finally, the other prerequisites of knowing, time and space also, only come into existence for us by means of distinguishing and comparing. Time is merely the series of changing, i. e. *different* sensations and the regular occurrence of certain sense perceptions resembling each other (e. g. night and day, summer and winter, the regular phases of the moon); and space as a whole only comes into existence for us through numerous distinctions and comparisons between sensations in certain law-governed interrelations.

But just as we cannot think one thought without distinguishing and comparing, so also we cannot *sense* at all without this faculty (see above 95 ff.). In every human experience, in every single second, whether the experince is what we call sensations, idea, feeling, will, action or anything else, we experience nothing at all, we sense, feel, will, think, or perform nothing without distinguishing and comparing

at every single moment. Indeed, all organic life from the lowest to the highest forms, can only exist at all because everywhere it distinguishes between several sensations and discriminates between suffering and satisfaction; no life can avoid the former or attain the latter without first distinguishing between them and recognising them when they recur in the same guise. Hence by the vital nerve at our very core we are linked to this faculty.

Of course our distinguishing and comparing cannot do without *elements* or *experiences* which we can distinguish and compare. The elements and this faculty are necessarily bound together. But the elements may be of the most diverse kind: sensations, ideas, including imaginative fancies, feelings, acts of will, words, geometrical figures, mathematical symbols, numbers; and not only can our distinguishing and comparing faculty group the elements in these different kinds, but it can also by confronting them with each other critically elucidate some elements by means of others. In the following I shall for the sake of brevity use the expression distinguishing and comparing—or our apprehension of likeness and difference—about the basic faculty alone, without always adding the elements with which this faculty operates, these being implied; and this is all the more justifiable since the elements, not only the imaginative ideas, but the sensations themselves are subject to the criticism of the distinguishing and comparing faculty.

The primary character and independence of the distinguishing and comparing faculty in reference to the other faculties of cognition appears not only from the fact that likeness and difference enter as a necessary components into all the other faculties of apprehension, the apprehension of causality, of space and time, but also from the fact that an entire science, mathematics, and all other formal sciences, as stated above, are based on our distinguishing and comparing faculty alone. We are able to think apart from the practical sciences, apart from space, time, and causal relations, but we cannot think without difference and likeness. And as a matter of fact it is this faculty of cognition which from the earliest times has been denoted by the special word for thinking, logic. All logic depends on difference and likeness.

To ask whether this fundamental faculty of cognition, our mind's apprehension of difference and likeness, is only a purely subjective or an a priori conception in ourselves or whether it partially or wholly represents the world in itself to us, is quite futile. We know nothing whatever about it and can never get to know it: it lies entirely beyond the limits of our knowledge.

The reason is that the very concepts "subjective", "a priori", as pointed out above, imply the fundamental concept of reality. "Subjective", "a priori", imply something in ourselves, in our mind, as contrasted with reality outside ourselves. Without the fundamental concept of reality there can be no criticism of knowledge at all. However, as I shall try to show, the fundamental concept of reality is in the first place based on our distinguishing and comparing, it cannot be conceived at all without our apprehension of difference and likeness. In this fundamental faculty psychology and epistemology have their primary common starting point.

This fundamental faculty of ours, our cognition of difference and likeness, is thus *beyond all such concepts as subjective, a priori, or the reverse; it is beyond all concepts of reality and truth* since these concepts only come into existence through it.

What has created the greatest confusion in the problem of knowledge is that *Hume* and *Kant* and epistemology after them committed the methodical error of regarding our apprehension of likeness and difference and certain other fundamental faculties of cognition as subjective, as residing in ourselves (as relations which are inventions of our mind, as subjective forms of understanding), though this assertion is incapable of proof and meaningless. And the whole insoluble dispute between their successors, the a priori school and the empiricists, is due to the same profound misunderstanding of the problem of knowledge.

Our Fundamental Concept. Reality.

There is reason to distinguish between *reality* and *truth* since we need both these words to cover different concepts. That a judgment is true means that it accords with its object, as already *Locke* and *Kant* pointed out. That a centaur is a creature with the body of a horse and the head of a man is just as true a judgment as it is that a horse is a whole-hoofed animal. But the former judgment is not real; it is not concerned with reality, whereas that is the case with the latter, which is thus both true and real. All the theorems of geometry are true even though there did not in reality exist a single one of the perfect figures with which inherited geometry is concerned.

The most difficult question is: whence is our *idea of reality* derived?

This idea has a certain connection with our idea of an external world; and this idea again, as shown by the word "external", is connected with our idea of space. This "external", the "spatial", is however in fact only something secondary in our concept of reality. The

nucleus of this fundamental concept is a *world that is different from ourselves*. But it is a subordinate question whether or not this world is spatial. The so-called external world is perhaps in the last instance a world to which space and time does not apply, as Berkeley, Hume, and Kant suggested. But apart from the question whether the so-called external world is not spatial—which in incapable of proof—it is and will always remain a world *different from myself*, i. e. *a reality independent of myself*.

Since the world which is independent of ourselves is, however, normally in daily life and in science characterised by being *spatial*, since it is an *external* world, it is of interest to trace whence our idea of space originates. *Berkeley* showed that our idea of space does not come from a single kind of sensations, e. g. visual sensations or sensations of motion, but from conclusions which we draw from certain visual sensations as we proceed to take our bearings among arising sensations of motion and touch. Even though recent psychology assumes that we already acquire a certain idea of depth or distance through our visual sensations, Berkeley is still right in asserting that we only get the normal fully developed conception of space through the said conclusions. And since everything, the composite complex of the above-mentioned different sensations as well as the conclusions, resides in us, and we have never through any sensation experienced any external thing different from the sensations and causing these, our idea of the external world, according to Berkeley, is a fiction. An idea, according to Berkeley's view taken over from Locke, has no validity, no reality, if it cannot be traced back to sensations, either isolated or externally connected; but the idea of an external world, a thing in itself, supposed to lie behind and be the origin of our sensations of motion and touch etc. and different from these, cannot be deduced as a copy of a sensation or several sensations. Hume accepts Berkeley's view. Hence the idea of an external world is a figment of the brain, like Spinoza's substance, a fiction (Hume I 497). But whence then is this fiction derived, this apparently solid and unshakable idea of and belief in an external world?

When *Hume* is to explain to us the origin of this strange figment of the brain he says that we mistake the great mutual likeness of our interrupted sensations, e. g. my observation of a house today and of the same house tomorrow, for the idea of an unchangeable object, an object constantly identical with itself through time, that is to say the idea of an objective world (Hume I 492—94). But Hume overlooks, as *Green* has rightly remarked, that we cannot possibly mistake one idea

for another when we have not actually this other idea in our mind (Green 255—256). When Hume says that we mistake the similarity and constancy of our sensations for the identity of an external object, then he really, without being aware of it, admits that we have such an idea. On his own view he cannot admit it; it must be a fiction because it does not fit into Hume's psychology. But this contradiction just shows the onesidedness of Hume's psychology.

From his psychological standpoint that all our ideas are derived from perceptions, sense-perceptions or so-called inner perceptions, Hume draws the epistemological conclusion that only an idea derived from a perception can be admitted to be real. But this conclusion best shows the untenability of Hume's entire standpoint, for if it can really be proved that all our ideas are derived from a perception his epistemological conclusion is quite superfluous. But the fact is that the idea of an external world can neither be traced back to a sense perception nor to any other perception.

Hume can, however, trace bach the idea of the necessity of the causal relation to an "inner" sensation or feeling, but with the idea of an external world he can do nothing. In vain he seeks that impression of a sensation or reflection which might have produced the latter important idea, so important indeed that the whole world relies upon it. But he finds none. Consequently he can only declare it to be a figment. But properly speaking this figment of the brain, this fiction, should not exist at all in our brain according to his own psychology.

The psychical phenomenon from which, according to Hume, we are supposed to have derived the fiction of an external world is, as we have already mentioned, the great similarity of our interrupted sensations. Here Hume asserts that our idea that two sense-perceptions, e. g. a table a quarter of an hour ago and the same table now, may be exactly like each other, identical, is sheer fiction; for exact similarity or identity between these impressions is impossible. In my opinion Hume is wrong. He evidently mistakes what only a very complex physical and chemical knowledge, including numerous causal relations, can teach us, for our immediate sense impression. And it is only the latter, i. e. the sensations, as they present themselves to us, which according to Hume's own point of view is decisive. What the highly composite causal knowledge of the atomic and molecular theory can teach me is that the table I see now and the same table a quarter of an hour ago cannot be exactly identical since even in this short time some molecules have presumably become detached from the wooden mass of the table or other changes

have taken place in the position of the molecules, though I cannot see them. But on Hume's—as well as Locke's and Berkeley's—fundamental view, the decisive thing is not such physical and chemical speculations on invisible causal relations which even, according to Hume, all lack reality; no, the decisive thing is whether the two impressions—the table before and now—*according to my sensations* are *identical*, exactly like each other. And that this is the case in numerous situations cannot be denied. And suppose we take our sense impressions of the table in two successive seconds. What then entitles Hume to assert that our impression of the table in two seconds is two impressions, not one? Sense perception only gives us one impression and when Hume nevertheless distinguishes between two in the seconds, it is his reflecting reason which has the time concept at its disposal that comes into play here. But according to his own argument the time concept has no validity unless two successive *different* sensations arise in the mind. Here, however, there is only one sensation, the table. But even if we assume that there are two sensations of the table in two minutes, nothing entitles Hume to call these two sensations *different* or to call our idea of their complete identity a fiction.

In my opinion, however, Hume need not resort to a denial of the identity of two sense impressions in order to assert that our idea of an external thing identical with itself through time, an external world, is not derived from a sensation or from several completely identical sensations. An hour ago I may have had a feeling, for instance, of displeasure and now at this moment quite the same feeling of displeasure—to me they seem exactly alike—and yet I do not infer from this that these two feelings have an independent objective existence outside myself. The fact is that here Hume mistakes identity or complete similarity for external existence independent of me; but these two things have really nothing to do with each other. Even if my impressions of a so-called external object, e. g. the aforementioned table, for several minutes or hours possesses complete identity to me, this identity is present whether I regard the table as being really an external object or I only regard it as an experience in myself or a phenomenon otherwise outside space, Hence we can have an *uninterrupted uniform sensation during several units of time without the idea* of an *objective existence* arising.

The same is true if the two impressions are interrupted, e. g. by an interval of an hour during which I do not see the table, when the two impressions in spite of the interruption seem to me to be identical. Hume actually, without being aware of it, reads into identity something under-

lying the sense impressions independent of myself, of the observer, that is to say, precisely the idea of an external world beyond the sense impressions. But this idea cannot be derived from the identity of two sense impressions. It is another thing that, if we have once—in another way—got this idea, the fact that we observe the same external object at intervals and find it unchanged from the time when we first saw it, will definitely confirm our assumption of an external world independent of us.

Our idea of a so-called external world, a world outside our own ego, must be derived from sources of our consciousness other than the sensations or a series of identical sensations—in that Berkeley and Hume are right. But this does not warrant the conclution that the external world is a fiction. That conclusion can only be drawn if we, like Berkeley and Hume, have acquired the onesided conception from Locke that the sensations are the basic faculty of cognition from which the whole content of our consciousness must be criticised and judged.

As far as I can see, our idea of the external world is derived from another faculty of cognition, that which seems to be the most universal of all, namely our *apprehension of difference and likeness* Through innumerable sensations, feelings, and ideas we gradually learn to *distinguish* between two large main groups of experiences, namely those that come and go independently of our will and the others. To the first belong the sensations in their relational connection and the ideas derived from and according with them. The other experiences, of which we are more or less masters ourselves, comprise all our freely combined ideas and fancies as well as our feelings and moods. It is our distinguishing faculty which teaches us to discriminate between these experiences, and our comparing faculty that groups them in two large groups, in two worlds, one independent of our own wishes, inclinations, and decisions, and one in which we ourselves are rulers, the world of imagination and feeling. Our conception of difference and likeness also soon teaches us the decisive practical distinguishing marks which in our daily life set bounds to these two worlds. The world independent of our wills and desires is determined by space, and in space it is coherent and coordinated by various groups of sense complexes, more especially those lasting ones that we call things. Gradually as the self becomes acquainted through the sensations with the properties of external things, general concepts are formed from these properties, such as form, extension, density, etc. and of their sum, the general concept "thing", which has all the properties that the external material things, the surrounding world possesses in contradistinction from the

mind, the self. The fact that we find these external things in the surrounding world unchanged in numerous cases, and thus a complete similarity when we again observe them after shorter or longer periods, strengthens our impression that the space-determined world is a reality that persists even when we do not personally experience it.

We may also express the fundamental difference between these two kinds of experiences in another way. If we consider the space-determined sensations, the world extended in space, we realise on the one hand that it is in us, since it consists of our sensations; but on the other hand we see that nowhere in it do we find ourselves. We see tables, chairs, houses, men, trees, all nature surrounding us, but nowhere ourselves, our own spirit. We see that our body, our brain, everything is space-determined, but nowhere do we see ourselves. The terms "outside", "external", "internal", are spatial terms. The self then is outside the space-determined world, and yet we are inside it because it is our sensations and ideas that are spaced-determined. This contradiction can only be solved by supposing that the sensations indeed reside in us, but that there is something *different* from them, external to ourselves, and that is the material world.

If then, we must divide the world into two parts, one that is independent of our will and whose normal characteristic is that it is determined by space, and our *psychical* world, which is not extended in space, the whole division is primarily due to *an act of* distinguishing, by which the ego, the mind, distinguishes itself from the surrounding world, or rather from a world independent of ourselves, different from ourselves, and *an act of comparing* which groups all phenomena in these two worlds.

Now it may of course be denied that our distinguishing and comparing faculty gives us the right picture of existence when it establishes that I am not that table, that house, that horse, etc., in short, that the self and the surrounding world are two different things. If, like Berkeley and Hume, we would deny the existence of the external world the denial will therefore strike much deeper than these philosophers suspected; it will strike at the distinguishing faculty itself not only in this, but in all questions. No scientific reason can be given why our mind's discrimination should yield knowledge in some but not in other fields. If our distinguishing and comparing does not give us any knowledge in this quite clear division between an external and an internal world, with quite definite distinguishing features, then this faculty does not give us any knowledge at all in any domain of the universe. The mind's

distinguishing and comparing is the basis of all mathematics and logic and of all establishing of real law-governed repetitions; thus that knowledge is not in the least more certain than our assumption of an external world. But no sensing whatever is possible without discrimination. In the simplest sensing which is the starting point of all knowledge there is an act of distinguishing in our mind. *Hence there is here an either—or: either our sensing and our assumption of an external world both yield us knowledge, both of them being entirely dependent on the same faculty of our mind, the faculty of distinguishing, or neither of them yields knowledge.* To assert, like Berkeley and Hume, (1) that only one of these, the sensations, a, yields knowledge, and (2) that the other, the idea of the external world, b, does not yield knowledge, as the latter cannot be derived from the former, from sensing, is an incorrect scientific method, for both these contentions, 1 and 2, are incapable of proof. Berkeley's and Hume's assertion that the external world is a fiction, while the sensations are true knowledge, is entirely due to a basic delusion, since their assertion is based on and makes use of the same prerequisite of knowledge—the distinguishing faculty—to which the assertion denies validity. When it becomes clear that the concept of reality, a world independent of us, by its very contrast, our idea of reality, has been created by our mind's distinguishing, and that the faculty of this very distinguishing is incapable of proof, it will be realised that Berkeley's and even Hume's scepticism in epistemology is not radical enough. If consistent, they should arrive at the result that *neither sensing, the assumption of an external world, nor anything else can give us any knowledge whatever. Even the concept of reality, existence, must be denied.* As a consequence we land in the scepticism of the sceptics of antiquity; nothing exists; and even if anything does exist it cannot be known.

But even this radical scepticism is due to a basic delusion. It has not realised that merely to express its scepticism about all knowledge it must needs move in contrasts: between *existing* and *not existing, knowing* and *not knowing;* and these contrasts only come into existence at all through our distinguishing faculty. All sceptics, moderate such as Berkeley and Hume, or radical such as the ancient Greek philosophers, thus overlook that in their very denial of our cognition (wholly or partially) they make use of cognition, namely our distinguishing and comparing; and their scepticism therefore cancels itself.

While *Berkeley* was content to deny the existence of the external, material world, *Hume* consistently, on their common assumptions, also

denies the existence of the self, the inner spiritual world. The so-called self is merely a series of sensations, feelings, ideas; but we have never *experienced* an independent being, a spiritual substance underlying and different from these successive experiences of ours any more than an external world or material substance different from the series of sensations. This is a consistent conclusion by Hume, for by experience he means perceiving with the senses; and we have never perceived with the senses—seen, heard, or felt—a self, an inner world. Consequently our idea of it is just as much a fiction as the idea of an external world. If Hume, by denying the self, merely wanted to assert that it is impossible to prove the existence of a self independent of our sensations, feelings and the like, i. e. an immortal spiritual substance, no objection could be made to his denial, for no proof can be given of such an immortal self. And the reverse being also incapable of proof, the only correct scientific answer to this problem is that we know nothing about it, either affirmative or negative. Hume's denial of the self, however, goes further. Actually he asserts that the self as a psychical unity of our sensations, feelings, and other experiences exists no more than the external spatial material world.

His denial of the self in this sense, that is to say, of our mind's unity in the stream of our experiences, is, however, due to an incorrect scientific method, namely to the basic delusion to which his denial of the external world is due. The same fundamental cognitive faculty, our distinguishing and comparing, which establishes the existence of two widely different worlds or spheres of experience, an external and an inner world, the self, also distinguishes sharply between the self and its individual experiences. Just as an external thing to our distinguishing faculty is something more and different from that complex of sensations which we call its properties—its colour, form, density etc.—namely a *something which possesses* these qualities, keeps them together, and produces the sense impressions in our mind, so also *our self*, our mind, is *something different* and more than the sum of our sensations, feelings etc. This appears clearly and sharply from the fact that the self not only, as stated above, establishes 'I am not that table, that house, that tree,' but also, 'I am not that feeling, that mood I had yesterday or have today, but I am the *one that have or have had this feeling or mood*, and perhaps tomorrow will have quite different feelings and moods, but still in spite of all changes herein am and remain *the same*, as long as I exist as this particular individual being.' This unity, in spite of all changes, is indisputable *so long* as our distinguishing and

comparing faculty is not disputed as cognition. But *if* this is disputed then *all other* human knowledge, all practical and formal science, all knowledge whatever falls away, For not the least little bit of human knowledge, not the smallest grain of what we call truth, ever comes into existence without our distinguishing and comparing faculty. Berkeley's and Hume's and their successors' scientific methodical error in denying the external world and the self consists in the failure to trace the problem of knowledge to the ground from which the source of all knowledge springs. This source itself, its distinctions and comparisons must fall away, not only the distinction between an external and an inner world. Altogether, there is no scientific justification for using our conception of difference and likeness in sense observation, in mathematics and logic, in the whole theory of knowledge, in the causal relations and groupings of phenomena in all the practical sciences, and then suddenly denying cognitive value to the same conception of difference and likeness when this conception establishes an external material world and an inner world, the self.

The fallacious reasoning which underlies *Berkeley's* denial of the external world and *Hume's* denial of the inner world or the self could only come about because of the narrowness of Locke's reasoning in making *the sensations* the *criterion* of *reality*, for then all the ideas which, like the external world and the self, were not derived from a

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The denial of the self or the mind as a unity of psychical experiences which was especially asserted by *Hume* in European philosophy is already to be found in Indian philosophy, viz. in *Buddha* (i. e. already more than 500 years B. C.). With him the denial is the background for his teaching of the redemption and Nirvana, see Poul Tuxen, Buddha, hans Lære, dens Overlevering og dens Liv i Nutiden, 1928, 157—76: Vilh. Grønbech, Indiske Mystikere, 117—19. *Buddha* draws the same erroneous conclusion as *Hume* and other philosophers in modern times. It is considered necessary to deny the self or the mind as a unity because an imperishable eternal soul substance in inferred from this unity. As pointed out above, this inference is quite unwarranted. That the self or the mind is a unity of psychical experiences is, as shown above, a fact established by our distinguishing and comparing. But whether this unity survives the death of the body we do not know. That is a matter of faith. The mind is a unity just the same whether it lasts 10 years, 100 years, or eternally. From the unity of the self we can infer nothing as to its duration.—Incidentally, Buddha's denial of the self as a psychic unity is due to the same basic illusion as Hume's denial. They both failed to see that in their denial they make use of the very same kind of thinking (distinguishing and comparing), the correctness of which they deny.

Kant pointed out that the mind is a unity, a synthesis; but that it is unjustifiable to infer a substance from the synthesis.

sensation must be fictions. This narrow reasoning has been continued in the 19th and 20th centuries, and so philosophical thought still hovers around the problems of an external world and the self. These problems should simply be abolished. Once the basic delusion on which they rest has been revealed there is nothing more to be debated. When we consider that the discussion about these pseudo-problems is still continued in the 19th and 20th centuries because it still moves within the same narrow circle, this scientific thinking strongly reminds us of the animals that, if a circle in chalk is drawn round them, cannot tear themselves away from the circle, dare not venture outside the line. In this curious round within the chalked line the same insoluble dispute still prevails between the various schools; and the dispute is merely a marking of time. One school, it might be called the *mentalistic* or *spiritualistic*, asserts that since the existence of an external world cannot be proved, our psychic experiences, our mental conditions alone, are reality and alone deserve to be investigated; and there is an opposed school, the *physicalistic* or *behaviouristic*, which asserts that since it cannot be proved that the human mind, human soul life exists, scientific inquiry should keep to and exclusively observe human (as well as animal) behaviour, the motions and reactions of their organisms in space, including the reflex movements of brain cells, nerves, and muscles in the external physical world, whereas all so-called psychic phenomena which are presumed to be the subject of a so-called self-observation, such as thoughts, emotions, acts of will etc. must be regarded as quite unintelligible, inane talk.

These opposed schools are both in the peculiar situation of being right in thinking that the views of the opposite school cannot be proved right, and they are both victims of the same basic delusion. For they have forgotten to examine what should be understood by "proving". If the proof is to be based on Locke's, Berkeley's, and Hume's criteria of reality, the sensations, neither the existence of the external world nor that of the internal world, the self, can be proved, for there exist no sensations from which these two ideas of an external and an internal world derive; in this Berkeley and Hume together are right; and since all proofs have so far been based on this line of reasoning, have moved in this narrow circle, no solution can be expected from this. But since both these schools in all their thinking and arguing with each other in the first place use the logical faculty, distinguishing and comparing, and since "proof" in this field consists in finding likenesses and differences in the world of

experience, the whole dispute and the problem will fall away, for one of the most fundamental differences and likenesses of experience is the difference between external material phenomena and internal psychic phenomena and the likeness between all the phenomena within each of these groups in these respects. Both the above-mentioned schools may if they please deny the presention or picture of existence of our distinguishing or comparing faculty, but then both schools have at the same moment ceased to exist, since they cannot think one thought, far less present a view of the world—be it spiritualistic or materialistic—or oppose another school—without everywhere and incessantly using the distinguishing and comparing faculty.

Thus all spiritualistic and materialistic schools in reality cut the ground from under their own feet. Without being aware of it they use in their own argumentation the same faculty of thought of which they are attempting to deny the applicability in their reasoning, even in the most important fields of our world of experience.

After what we have stated above there is no reason, either, to waste time on the old problem of the relation between the body and the soul, which is not worth all those quantities of literature that have been devoted to it. The greater part of this literature is speculation incapable of proof. Our distinguishing and comparing in all our experience show us clearly two different worlds, the physical extended world, and the mental world, which cannot be characterised by extension, by space. We do not know how these two worlds interact. We merely know that from the surrounding world certain movements pass by way of our sense organs to our brain cells, giving rise to definite mental experiences, namely sensations in certain interrelations, and that, conversely, from certain mental experiences, namely acts of will or decisions there issue certain movements in nerves and muscles, which direct the body and its limbs the way the act of will aimed at. Thus we note that these two phenomena succeed each other in time; in the former case the physical is succeeded by the mental, in the latter case the mental is succeeded by the physical. Hence there is between these two phenomena in temporal succession a relation which according to our usual notions we should call a causal relation. According to our usual notions we do not hesitate to say that the mental phenomenon: my decision to move my arms, is the cause of the physical phenomenon, the succeeding movement of the arms, and conversely, that the physical phenomena, the rays of light emanating from an object in the surrounding world, are the cause of the mental phenomenon, the impression on my consciousness of the colours

of this object. But what this causal relation or relation of reciprocity is in detail in both cases, how the physical process in the brain cells at a certain stage passes into the mental process in our consciousness (and conversely), whether there may here be gradual transitions not observable by us, or whether there are other, quite unsuspected solutions, incomprehensible to us, we do not know at all. If the concept of causation is abandoned, we may be content with establishing that there are certain law-bound relations between the reciprocal occurrence of physical and mental phenomena. The only thing beyond this that we can establish is that, according to the first and most important of all the human faculties of cognition, the faculty of distinguishing and comparing, our experience so far shows that there is a fundamental difference between these two phenomena, the physical and the mental, but that the transition between them, the closer relation between them, is quite unknown to us.

Nothing more and nothing else can be said about this question; an attempt such as that of Spinoza to regard the mental and the physical as merely two expressions of one and the same essence or substance, is free speculation, as is also the pantheistic religion on which Spinoza relies. In reality Spinoza here implies that the fundamental faculty of cognition, our apprehension of difference and likeness, does not give us the true picture of existence; but this is a postulate which, be it said, is catastrophic to himself, since the whole of his mathematically built system is otherwise entirely based on a sharp logic, i. e. on a clear apprehension of difference and likeness. Our distinguishing and comparing in our experience, in all observations so far, do not show *identity* between the mental and the physical, as asserted by Spinoza, but a sharp difference between these two phenomena. And without entirely new experiences it is a hopeless waste of time to enter upon speculations going beyond this fact of difference. Of such speculations just as many may be spun as there are philosophers, from Spinoza's doctrine of identity and a universal substance and Leibniz's monad doctrine to Hobbes' doctrine of material unity. There is free scope for innumerable ingenious constructions; for they are all equally incapable of proof.

It was a narrow psychology and epistemology which in the 18th century led to the erection of the sensations without the relations as the criterion of reality for our ideas, and thus to our considering our apprehension of difference and likeness as subjective and our idea of

an external world—and of the self—as a fiction. It was overlooked that according to this, our fundamental concept, reality, which is closely associated with our idea of the external world, is itself a fiction, since it, too, is not derived from the sensations but from a relation, namely our apprehension of difference and likeness. But this narrow psychology and epistemology has been continued ever since, in the epistemology of the 19th and 20th centuries. So that when modern philosophy attempts to explain how these curious ideas not revealed to us by sense observation have come into existence, it is not to be wondered at that the explanations are exceedingly intricate, artificial, and prolix. These explanations vividly recall the learned man who ran about looking for his shoes in all his rooms for ever so long, only to discover at last that he had them on his feet, the sole difference being that these present-day philosophers never discover the shoes. They are chronically beset by the basic delusion to which already Berkeley and Hume feel victims in classical epistemology. In all their diffuse and intricate explanations of the justification or non-justification of the ideas about the external world and the self, they use the same distinguishing and comparing faculty; this faculty is the shoes they wear in all their thinking but do not see; and yet it is in the first place this faculty that has created these ideas. Either this faculty yields knowledge, and in that case its distinction between the external and the internal world is right, and long discussions going beyond this are superfluous; or this faculty gives no knowledge, but in that case the long discussions too will fall away since they all use this faculty. If so all human thinking will fall away.

Distinguishing and comparing, the fundamental human faculty of cognition, then establishes, as surely as a sensation, (1) that there is an external world and an internal world, the self, (2) that the self is different from its various experiences, and (3), that the self, as soon as it has had an experience, a sensing, a thought, an emotion or the like, also has a *consciousness* of having had this experience, and of the contents of this experience.

Hence, that there is an external world and an internal world differing from it is just as certain as it is that $2+2$ are 4. Both these assertions are due to the same fundamental faculty of cognition, our distinguishing and comparing. That the human mind, human soul life, exists is just as certain or uncertain as the assertion that there exists an external world and as the assertion that $2+2$ make 4. All the numerous and

lengthy discussions in philosophy, psychology, psycho-physics etc. so far, of the existence of "the psychic", which even nowadays still burden us with heaps of literature, can thus be totally spared in the future, as due to a pseudo-problem.

Among the linguistic terms for the human mentality there is no reason whatever to reject the old words soul, spirit, and compounds of them, since they are good terms for the peculiar unity constituted by our mind. If it is only established once for all that it is quite unjustifiable to infer an eternal soul substance from the unity of the soul or the mind, there is nothing to prevent us from still using the good old words soul and spirit side by side with the word mind, and compounds such as soul life and spiritual life alternately. Incidentally, a word such as spirit has the advantage that we may form from it the excellent adjective spiritual, while we have no adjective corresponding to consciousness. Here we must use the word mental.

The controversy between vitalists and mechanists about the problem of life seems to me to be rather futile. That life is due to a particular vitality is just as incapable of proof as it is that the motions of bodies towards each other in acceleration is due to an attractive force. The mechanists usually contend that a particular vitality as the cause of life is not a "vera causa", since it cannot be demonstrated by experience, i. e. by sense observations. But the same applies to the attractive force; and in addition, as I have shown elsewhere, not only the concept of force but the very concept of cause in the sense hitherto accepted must be abandoned. What we observe both in the organic and the inorganic world is merely law-governed relations; but we do not understand the basic phenomena in any part of nature; and with the mechanical motions of bodies in the inorganic part of the world we are no better off in this respect than with the genesis and growth of organic life. We do not know and do not understand at all what "motion" of external bodies is; motion is a basic phenomenon of external bodies as well as extension. To search for a "cause" or a "force" behind the movements is futile at the present stage of science. Even if the mechanists were to succeed in explaining organic life as mechanical physical phenomena, as motions of external bodies, the enigma of the world would still remain unsolved since we do not even know and cannot explain what motion of external bodies is. And so far it has not even been possible to trace back the phenomena of organic life to mechanical motions. The difference between organic life and the inorganic world according to our experience so far, would seem to belong to the last fundamental, irreducible differences of existence which cannot be explained, any more than the difference between physical and mental, + and − electricity, see also my book Erkendelseslære og Naturvidenskab (Epistemology and Natural Science) pp. 299-318.

Much speculation has been given to the problem as to whether *our* conception of the world, reality concept 1—our ordinary reality concept —actually covers reality concept 2, the absolute concept of reality. However, since our basic concept of reality, both the ordinary and the absolute one, as has been shown above, has been created by our distinguishing and comparing, and we cannot criticise this faculty of cognition in that respect, the whole of this problem of the relation between the two reality concepts which has troubled thinkers from antiquity to our day, must fall away as insoluble, as a cognitive delusion, seeing that the assertion of the ancient sceptics, of Berkeley, Hume, Kant, and the 19th and 20th century epistemologists that our faculty of cognition cannot know the inmost reality, the world in itself, as well as the assertions of the rest of the epistemologists to the contrary—Greek nature philosophy, Plato's and Aristotle's thinking, the systemic philosophy of the Renaissance, positivism or realism—are in reality without meaning. Both the opposed assertions are equally incapable of proof.

There exist finer, smaller differences than our direct sense observation can discover. Thus there exist differences in weight—thousandths of a gram—which our sense of pressure cannot register. Our ordinary sensation of sight and sense of pressure can never perceive even the largest molecules. But by means of the electron microscope these molecules can be observed. These cases, however, give no criticism of the distinguishing and comparing faculty itself, but merely a criticism of that distinguishing which makes use solely of our ordinary sensations. The reason why we are here able to arrive at finer, smaller differences than our normal sensing can give is that by the observation of law-governed relations and a fresh distinguishing and comparing on the basis of these relations we can arrive at a cognitive criticism of sense observation itself, in the same way as in the assumption of the secondary sensible qualities.

Altogether, in the co-operation with the other faculties of cognition, especially our sense observations and our observation of law-governed interrelations between these, we have a certain corrective, a certain limitation to our apprehension of difference and likeness. Thus a distinguishing and comparing which is separated from the control of experience, i. e. from the verification by the sense observations in their law-bound interrelations, is barren, and leads human thought astray. Scholastic thinking in the Middle Ages and its formalistic logic are examples of this.

Mathematics on the other hand, are not in this sense detached from sense observation in relations, for its fundamental starting points are ideas derived from and according with sense observation as basic qualities of the things of experience (size, figure, number).—Further it may be mentioned that in existence there are numerous differences and likenesses which are of no scientific or practical value; they are irrelevant; but this means that they do not express law-bound interrelations between phenomena and therefore are of no real interest. In short, in all practical science, the two cognitive factors 1 and 2, differences and likenesses and law-governed interrelations, are most active, when they are working in close co-operation with each other.

2. THE LAW-BOUND INTERRELATIONS

After factor 1, our apprehension of difference and likeness, the most universal relation is our apprehension of the *law-governed interrelations* of the phenomena, the external and the psychic ones, in connection with the time in which these interrelations occur. That fire, when approached to lead, is *succeeded* by the melting of the latter, that the strong heat of the sun in the spring is succeeded by the melting of the ice and the snow, later by the shooting of the leaves, are law-bound interrelations between our sense observations, which are a scientific basic fact, unshakable no matter what *interpretation*, visual or dynamic, we put upon these interrelations.

We may *criticise our explanations* of these law-bound interrelations just like our explanation of force, our concept of causation and our law of causation altogether. But in my criticism of the interpretation of force and causation, by the demonstration attempted above of the personal human origin of this interpretation, I have precisely throughout used these two faculties of cognition, the ascertainment of differences and likenesses and of the law-bound interrelations between the phenomena. Thus we can only by logical distinguishing and comparing arrive at the difference between the law-bound interrelations and our interpretation of these. And when we distinguish between law-bound interrelations and statistically frequent interrelations, it is also our faculty of distinguishing and comparing we are using.

In the explanation of the basic concept of reality which was attempted

above, in contradistinction from the earlier epistemology, in order to keep *pure* the question of the participation of our distinguishing and comparing in the concept of reality, I kept exclusively to this fundamental faculty of cognition at this stage. But now, in the presentation of the law-governed interrelations, it must be emphasised that these very interrelations have also had the greatest share in our formation of the concept of reality. The stable law-governed interrelations in external nature, even during the greatest changes, interrelations which persist unalterably independent of our will, and with which we ourselves can only to a small extent interfere, give us in a rare degree the impression of an external, fixed, stable reality which we must take into account everywhere, and on which, on the other hand, we can also rely.

Altogether, our idea of a reality, especially of an independent external world, is an exceedingly complex idea; hence it is no wonder that Berkeley and Hume could not explain this idea, the idea of "thing" or "substance", and dismissed it as a fiction. It is a complex phenomenon, but compounded of those very faculties of cognition which Berkeley and Hume themselves applied everywhere in their criticism of knowledge, but which they, with their one-sided starting point, the sensations, were obliged to regard as subjective.

The unusual complexity of this idea may presumably, after the above analysis, be briefly outlined as follows:

The chief element of its origin is, as shown above, (1) the sharp distinction we see and feel everywhere between the *sensations that come and go independently of our will*, and our other experiences. But another important element intervenes, contributing to fix our idea of the external world, namely the above-mentioned (2) *complete likeness* or *identity* we observe in the lasting objects in space which we call things, when at intervals we return to them. As shown above, the idea of identity is presumably unable in isolation to explain the idea of the external world. But it is a contributory factor in the further formation of this idea when the above-mentioned great distinction has been drawn. We see the things, for instance a tree, a stone, at moment 1, and after that we observe them uninterruptedly through a series of moments, for instance moments 1 to 100. Already in this way we receive a strong impression of the identity of the things, their preservation of constancy through time; and simultaneously with seeing the likeness of the things to themselves through the changing moments, we see in contradistinction to this the variability and stormy changing for instance of clouds that

gather, pass over the sky and disappear. If later on we are called away to other places and do not see the aforesaid things for some time, the trees and stones in this place, but then return to them and observe that they have preserved their identity during our absence, the perfect likeness to themselves, then we have a still more fixed impression of the things and altogether of the *stability* of the external world; and if in some cases some few changes have taken place in the things in the interval, we find that even the changes occur with a certain constancy, namely in (3) *the law-bound interrelations,* which we popularly call causation. And after these impressions of the identity of the external world with itself in many things, its stability in large spheres and its constancy even in its changes—all independent of us—we finally also receive an impression that this identical stable, or constant world, independent of us, is "the cause" of the sensations in us, that is to say, that our turning to and approaching a thing are constantly accompanied by our visual impressions and other sense impressions and, according to the more recent interpretation hereof, give us the idea that either forces in the things or minute particles from the things act on our senses.

The two faculties of cognition that yield the most universal relations between the experiences, our apprehension of difference and likeness and of law-governed interrelation in time, are, however, not only the foundations of our whole concept of reality, but altogether the first starting point of all human cognition and knowledge. This can also be proved by a consideration of the knowledge actually afforded us by the sciences in the different spheres.

In whichever of the extensive spheres of science we find ourselves, we shall see that research tries to penetrate deeper and deeper into the problems of existence by explaining one phenomenon after the other by means of others that have previously been explained. It has been said that all cognition is *recognition.* The same thing is implied in the following definition: cognition is deducing something unknown from something known. What we call scientific proof is in reality the same thing. To prove is to trace something at the moment unknown, an X, back to something known. But, however far back we carry our series of thoughts, our chains of proofs, we shall at last come up against something final, unexplainable, unknown, some last link incapable of proof.

This last unexplainable thing, incapable of proof, will, from whichever

spere of science we find our way to it, so far as I can see, prove to be precisely our apprehension of likeness and difference and of law-bound interrelations between our experiences.

In *algebra* we solve our equations with unknown quantities by chains of proofs, according to which one quantity is equivalent to another quantity, this other to a third and so forth, until we have carried the unknown X (or X and Y etc.) back to a known quantity; but the whole chain of proof rests on a final assumption, namely that there really is a likeness between quantities. But this ultimate assumption, on which all algebra and all mathematics rest, cannot be proved. The ultimate mathemathical axioms in this field run as follows: (1) 2 quantities which equal one and the same third quantity, equal each other. (2) The whole is greater than part of it. But these axioms are grounded entirely in our apprehension of *likeness* and *difference*, and are merely a special expression of it.

We sense or feel directly that a quantity, whether it be a number or a figure, is equivalent to another, mentally covers it. This direct apprehension derives from our "feeling" or "finding" of likeness between or covering of two sensations and later between two corresponding ideas. On this ultimate cognitive assumption, our apprehension of likeness and difference, rest not only the above-mentioned axioms but all the axioms and definitions of mathematics. A basic definition in *geometry*, the definition of the straight line, according to Euclid runs thus: A straight line is any line lying straight between the points on it. At the outset Euclid had defined a point as that of which there is no part, and a line as a length without breadth. Neglecting in this connection the objections of the more recent realistic geometry to Euclid's definitions, it applies to them as to all other mathematical definitions and axioms, that everywhere—however we propose to define them—they rest on our apprehension of *differences* and *likenesses*. The first Euclidean definition, that a point is that which cannot be divided, is thus based on the observation of the difference between that which can be divided—whether it be lines, surfaces, bodies—and that which to our daily visual sensations can no longer be divided, as on attempting

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Thus Euclid's definition of a point as indivisible is no abstraction but accords with experience. And indeed even the premise that a point has no extension is no abstraction either, for our eye can perceive coloured points without extension, see book I 102—107 with notes.

it, it would disappear from our sight. By the definition of a line as a length without breadth we distinguish the lines, the outline of a figure from its surface; and the definition of the straight line in reality implies our direct apprehension of the difference between a curved line and a straight line and of the likeness between all pieces between various points of the same straight line. A definition of a straight line often used in modern times, which seems to be more informative as to its contents than that of Euclid, is the familiar one: a straight line is the shortest distance —or way—between two points. This definition is based on our spatial experience, that is to say, upon our observations of differences between sensations of sight and motion and, as previously pointed out, of *law-bound interrelations* between these, since our experience of these interrelations through thousands of years shows that those lines which appear as straight lines to our sight are those that give us the smallest number of sensations of motion when we are to move from a particular point to another.

The first mathematical axioms have often been called self-evident, the idea suggested thereby being that this quality, self-evidence, should render proof of them superfluous; this consideration rests on an epistemological lack of clarity. That the mathematical axioms seem to us so "self-evident" really only means that in our experience of two successive sensations or ideas we feel that they resemble or cover each other, or are different from each other. From this basic experience of likeness and difference all mathematical axioms, definitions, conclusions, and doctrinal structures have been thought out and constructed. As far as geometry is concerned, the second fundamental faculty of cognition is added; namely our apprehension of the law-governed interrelations which condition our conception of space. But we cannot "prove" these latter cognitive faculties or factors of cognition; we cannot trace back our apprehension of likeness and difference or of law-bound interrelations to anything we know still better than these apprehensions. The so-called self-evident or obvious is a linguistic subreption of an element of proof which does not exist. The specially obvious is merely due to a feeling in us of a certain sureness in our apprehension of likeness and difference between quantities, numbers, and spatial magnitudes and figures. But whether this apprehension of likeness and difference and law-bound interrelation is merely our subjective perception or a true reproduction of reality in the absolute sense we do not know. What applies to mathematics also applies to logic, logistics etc.

It can then be established of all the formal sciences, mathematics, logic and the like, that when we pass through the series of thoughts or chains of proofs in these sciences and penetrate as far as we can to the ultimate foundations or starting points of thought, we meet with the factors of cognition illustrated above: difference, likeness, and law-bound interrelations, hereunder space, which cannot in themselves be the subject of proof.

In the practical sciences too, we see that cognition is recognition, that is to say, it consists in tracing back something not hitherto known to something known. The general concepts of for instance organism, animal, horse etc. thus mean that when we meet with a new phenomenon, we refer it to a common group of related phenomena known beforehand. In the individual horse we recognise common features in which it resembles the group. We meet this phenomenon of recognition not only in these ideas of types but also in the general ideas of qualities. When we say that a thing has a quality, for instance that it is white, it means that we have many times before seen this quality in things and now recognise the common feature in which the new phenomenon resembles the many previously known phenomena, which we express in the proposition that the thing is white.

As previously shown, everything that may be called *change* attracts the special attention of man; he asks: why, and does not rest until he has referred the new thing to something he already *knows*. This takes place primarily by analogical inferences from something man knows from himself. I observe, for instance, that heat is followed by the melting of lead. I have met heat before without the phenomenon of melting; and they do not in themselves tell me anything about each other. I recognise nothing, no quality in the melting that I had already found in the heat, as I recognise the quality "whole-hoofed" in a horse today from another horse I saw yesterday. Only when I can refer both the phenomena, the heat that is followed by the melting of the lead, to the changes with which man is most familiar, movements of bodies, here of molecules, have I experienced the *recognition* in which our cognition consists. We meet with the same tracing back of unknown phenomena to the same known phenomenon in the modern atomic theory, the latter too tracing back new phenomena, in this case electricity, magnetism, and radioactivity to the same phenomenon motion, well known to us, only here with the difference that the movement—besides of ions—is of still smaller bodies than molecules, namely elec-

trons and the like. All that is termed change, motion, takes place in time.

Now, do we *understand* the change we call the motion of bodies or external objects better than other changes in the surrounding world? This question must undoubtedly be answered in the negative. Actually we do not understand motion either by near action or by distant action. How a body in motion can by collision "communicate" motion to another body, and how a larger body, even without collision or other contact, can from a long distance set a smaller body in motion (the fall of a stone to the ground, the revolution of the planets round the sun), is in itself quite incomprehensible to us. When we say that the movements of a body are known to us it only means that we know them from our daily life—and therefore normally do not think much about them—but actually we do not understand them, cannot explain them, since we cannot trace back movements of external bodies to other better known external phenomena. What the kinetic theory of heat and the atomic theory do is thus only to *shift* and *simplify our ignorance*, to trace back *two* or *more* incomprehensible phenomena—heat, electricity, and the like—to *one* incomprehensible basic fact: the motion of external bodies.

If we want to understand this latter external fact we can resort to the only fact we know directly: our own mental experiences, that is to say, apply *the concept of force* to explain external movements in the surrounding world, force being the only cause we really *know*, namely from ourselves.

This dynamic explanation is, however, only our *interpretation* of the movements in the universe. Strictly, we only observe the *movements*, and in daily life the many changes which modern physics trace back to movements, and the *regularity* of all these movements or changes, the result then is that in practical sience, too, we are everywhere in our cognition led back to these ultimate cognitive faculties or factors of cognition, our observation of *likenesses* and *differences* and *law-bound interrelations* between our experiences, hereunder space and time. Further back we cannot go. Even in the world we know best, our inner mental world, we also only experience sensations and other phenomena in law-bound interrelations. When we say that our muscular power sets our body or other bodies in motion, all that we experience is only that certain sensations of muscular tension are succeeded in time by certain sensations of motion or touch in a law-bound interrelation experienced many times. How our will—a purely internal mental experience—can

produce the so-called muscular power, and how this can set external bodies in motion we actually do not know; nor do we know how bodies in the surrounding world through the movement of tiny particles or of light can "act" on our senses and "produce" sensations in our mind. Here, too, we must be content with noting the law-governed occurrence of the phenomena. Here our cognition stops; we cannot trace back this phenomena to another which we know still better. Our whole cognition or recognition thus stops here at last at the law-governed interrelations.

CHAPTER 9

THE FADING IDEAS

The ideas which are impressions of concrete sensations, for instance my idea of a red colour, an oval figure, or of a thing, for instance a tree, all possess the advantage that they can be visualised. Such comprehensive ideas, on the other hand, as our idea of the external physical world and the inner mental world are vague, indeterminate in outline and not very clear. For these comprehensive ideas are not concrete impressions of particular sensations, as for instance the yellow colour I saw yesterday, or the tree I saw an hour ago; on the contrary, they have arisen through numerous comparisons of concrete things, of innumerable trees, houses, stones etc., as our distinguishing and comparing faculty gradually *disregards* a number of qualities of the things and at the same time concentrates on a single common feature, namely that the things have extension and occur in space. The mind therefore establishes this feature as the one great *likeness* between all these numerous phenomena; and at the same time our distinguishing and comparing, through innumerable other experiences in law-bound interrelations establishes the other common feature for the same numerous phenomena, the other great resemblance, namely that they come and go independently of our will and our wishes. On a line with the whole of this separation from these concrete phenomena of common great likenesses another comprehensive separation and formation of likenesses take place, namely, of the mental phenomena, which by their opposite common features, their dependence on our will and non-spatial character, are definitely distinguished from the physical phenomena as an independent group. But such comprehensive, all dividing ideas as these, the physical external, and the mental internal world, must according to their whole very complex origin necessarily become exceedingly vague and indeterminate. During the great separation or abstraction from the numerous different features

of the concrete things, and the emphasising of the single similar features, the comprehensive idea gradually loses contact with the many concrete things and their life, in colours, outline and the like. These many concrete vivid features are blurred during the process of abstraction and become more and more obliterated in colour and outline. It is true that our idea of the surrounding world or of the substance of the universe is not entirely without outline and colour. The former is probably usually visualised as an indefinable large region with many vague objects, on the whole perhaps mostly greyish, in a misty light. The universal substance is probably mostly visualised as an indefinable great mass, and space as a huge dark place with dispersed luminous celestial bodies. While our notions of our individual mental experiences are quite clear and definite, our comprehensive idea of the mind in its entirely, the mental world, is, on the other hand, also rather vague.

For the sake of brevity we might call these and similar comprehensive ideas, which by the above-mentioned great abstraction and formation of likenesses have receded more and more from the life of the concrete sense impressions, vague ideas.

After this we understand better that modern epistemology, which was inaugurated by Locke, Berkeley, and Hume, started from the sensations and judged the ideas from them, for it is only those ideas that are copies of concrete sense impressions, of things and their qualities, that are capable of being clearly visualised. The ordinary man keeps to the same sense impressions in daily life. On this view it is psychologically explainable that the new epistemology assumed a hostile attitude towards *all vague ideas.* These could not be traced back to concrete sense impressions, and were then, on this criterion of reality, evaluated as fictions. It was not in the nature of the clear, simple, easily understood psychology of English epistemology to trace the complex process of abstraction, of likenesses and differences and law-governed interrelations, from which the vague ideas arise. By this classical, simple psychology and conception of reality the English school, as we know, broke the back of the foggy concepts of the preceding dogmatic philisophy, especially the concept of substance, which had gradually ended in such empty ideas as Spinoza's universal substance, its attributes and modes, Leibniz's monads and the like. But later on this school discovered with Berkeley, and most consistently Hume, that the same simple psychology also exploded the fundamental concepts of science and daily life, the concepts of an external world and the corresponding internal world, the self. However, they had then gone so far in this psychological line of think-

ing and the epistemology derived from it, that it was too late for them to turn back and ask whether it was not their psychology and epistemology which were too simple, too elementary in conception and altogether too narrow.

As other vague ideas we must point out our ordinary *general ideas*, both our *ideas of types* (of things or creatures, for instance the concept of silver, the concept of metal, the concepts of horse, animal etc.), and general *ideas of qualities* (concepts such as colour, hardness, beauty etc.). The less comprehensive these general ideas are, the less vague are they. Thus the general idea "horse" has preserved more concrete life about it from the many concrete visual images of horses we have experienced, than the more comprehensive general concept "animal", not to speak of the still more comprehensive concept "living organism". The concept "silver" is less vague than the concept "metal" and still less vague than the concept "element". Of course the ideas treated separately above, the external and the internal world, are also general ideas; they are merely far more comprehensive than all that we have just mentioned added together.

Nor can the simple psychology of the English school really explain the ordinary general ideas. It is true that Locke—and after him Berkeley and Hume—comfort themselves with the thought that we pick out a single concrete sensation, for instance red, or a concrete complex of sensations, for instance a horse I saw yesterday, and set it up as the *representative* of the whole group, i. e. of the concept of colour and the concept of horse. But in reality the elementary psychology of the English school cannot explain the general idea. For the latter is something else and more than the general ideas which are copies of concrete sensations, simple or complex. It is also an expression of the circumstance that our mind *distinguishes* between this concrete picture and the whole group of the numerous things *resembling* each other for which it is set up as a symbol or representative. This circumstance, that our mind *sets up as a representative* a concrete thing for the whole class and its type, that is to say, its common likenesses, is a complex process of thought, by which we disregard a vast number of concrete differences between the many single things, retain the likenesses essential to us, and gradually, as the impressions of the concrete things become more and more obliterated, retain the vague idea of a type thus generated in our memory. *Frithiof Brandt* has pointed out that the species-forming mental process begins already at a very early primitive stage, in modern man unconsciously, instinctively, already in the attitude of the child

towards the phenomena of the environment, individual beings and individual things, see Brandt II 29 ff.

Besides the two elements that the English school found in the mind, the *sensations*, simple and complex, and the ideas which are *copies of the sensations*, whether in the same order as these or in fresh combinations, in imaginary notions, there is then a *third group* of intellectual phenomena, the vague ideas which are a higher complex product of our distinguishing and comparing faculty and our sensations. The general ideas, consciously elaborated as general concepts constitute one of the most important factors in all higher human thinking, are part of the bedrock of all scientific research. The general concepts are among the features that fundamentally separate man's thinking from the narrow world of ideas of animals. Such delicately shaded notions are probably not found in animals at all, or at any rate only in a very inferior embryonic shape, for these ideas, besides our keenly developed distinguishing and comparing faculty imply a faculty of memory, a faculty of retaining in the mind the likenesses and differences of numerous earlier impressions, of so vast a compass as only man has been able to develop, whereas animals only possess a very limited faculty of memory. By means of the general concepts we are able to embrace mentally the whole universe, divide it into larger and smaller groups, find our bearings in the vast regions of experience of the universe, summon at our pleasure as by the lamp of an Aladdin now one, now another group of the phenomena of the world, bring them together now in one now in another combination, all according to our practical and scientific needs. It was not unjustifiable, therefore, that Plato in a poetical vision saw in the general concepts, the ideas, the eternal, the divine element in the human mind. These delicately shaded ideas, by which we rise above and control the endless swarm of heterogeneous varicoloured impressions of the world of sense are one of man's marks of nobility.

As to the general concepts nominalists and realists are both of them equally right and wrong. The nominalists are right in thinking that in experience, in the coherent sensations we have hitherto had, we never meet with the type, the general concept, e. g. the type horse, animal, plant, but always only with concrete sensual images of the individual horses, animals, plants, and so forth; but Plato in his doctrine of ideas, and the realists after him, are right in thinking that the general concept is nevertheless an expression of something essential and profound in our experience—and if this leads to knowledge, of something central in existence—namely: the law-boundness, the regularity that our distingu-

ishing and comparing faculty finds the same likenesses and differences throughout nature not only between two sensations or two sense complexes, but between innumerable sensations and sense complexes. Our mind expresses these law-governed likenesses and differences in our experience of nature in the *type*, the *general concept*, just as our apprehension of changes finds another law-boundness in the universe, which we express in the so-called *laws of nature*. A series of sensations being capable of being retained in memory, the distinguishing and comparing faculty establishes—through general concepts—nothing but likenesses and differences which return again and again in certain hitherto experienced series of sense impressions. The grand comprehensive view we gain of the multiplicity of the universe through these general concepts or ideas, delicately vague and yet closely syntonised to the sensations, in thus to be found in experience itself, and if the latter is true, also in nature itself.

That we have a *consciousness of* our *self* as the unity in our experiences, which is different from these, is a particular abstract idea due to the fact that we, as it were, simultaneously detach ourselves from and thus rise above the individual experiences of today and yesterday. Every time I think, feel, or want something I have at the same time a subsidiary notion, a subsidiary consciousness *that* it is I, my self, that has this thought, feeling, will, and not another person different from me, and *that* yesterday I thought, felt, wanted other things than today and yet, in spite of his change, I am the same self, different from these changes. In other words, the self is conscious of its own identity in spite of all changes in the mind, in spite of the multiplicity of the mind. At the same time I am aware, I have a conscious idea of my individual inner experiences as well as of my sense impressions of the external world. From our conscious self-observations and our conscious observations of the external world we form what we call *judgments* or *opinions;* and on the basis of our conscious general ideas we can express judgments or opinions of whole groups of numerous individual observations, whether they concern groups af external objects, so that from the concept of horse we segregate a single quality, e. g. whole-hoofed, or groups of inner mental phenomena, for instance feelings and acts of volition. That to which our conscious idea refers—a physical or mental phenomenon—we call its object. Concerning our consciousness of, our judgments or opinion of individual objects or groups of such, whether they be physical or mental, *Locke*'s and *Kant*'s definition of truth holds

good. Locke says that the truth or falseness of an idea is its agreement or disagreement with something outside the idea, Locke I 515. Kant's definition is almost similar: Truth is the agreement of our cognition with its object (Wahrheit ist die Übereinstimmung der Erkenntnis mit ihrem Gegenstande, Kant III 78).

—A curious testimony to the onesidedness of Berkeley's and Hume's psychology and epistemology is their denial of the idea of *empty space.* According to these thinkers, this space is no reality, merely words (Book I 74—77, 101 seq.). This denial is consistent, for our idea of empty space cannot be deduced from any sensation, but so far as I can see, arises from distinguishing and comparing. As we move our body, we distinguish between sensations of motion and sensations of contact; and when we compare the state in which we receive no sensations of contact during our sensations of motion—that is to say, that the self does not come up against any object in space—with states in which we now and then or constantly receive sensations of contact simultaneously with sensations of motion, as we come into contact with some or many objects, we receive in the first case an impression of empty space. Later we find that the apparently empty space in which we have moved, e. g. an empty room, did nevertheless contain something, namely air; but of the latter, which is invisible, we only become aware through a very complex thought process of causal connection and also acts of distinguishing and comparing between a series of observations. But in all our observations our distinction between the empty space and the objects contained in it is confirmed; and we establish that at any rate large parts of space are empty, both devoid of air and devoid of other substances. There is just as little reason to deny the existence of empty space as there is to deny the existence of the external world altogether, and to deny its difference from the internal world, for these basic distinctions all depend on our faculty of distinguishing and comparing; and the truth of this cannot, as I have shown above, be denied without denying all knowledge whatever.

Mathematical thought comes into existence by our *separating* certain properties of the things, such as size and shape, and the phenomenon of number (i. e. the perception of several objects) from their connection with other sensations of the things. We separate them entirely from time and all the perishability, change, and variability in things accompanying it. By a sharp distinction we carry our *general ideas* of the size, shape, and number of things, gained by comparisons between

numerous things, into a world of ideas where we *resolve*, i. e. agree to disregard all time, all changes in the things, and all other qualities in them (colour, denseness, heat and the like) after which we can pronounce eternal, general judgments about these few fundamental qualities, since in this world of ideas of our own we are not dependent on experience, on the circumstance that perhaps our experience tomorrow of the external things will be quite different from our former experience of these things.

It is usually said that in mathematics we *idealise* the notions we derive from experience, sense observation, which are never perfect. Thus it is said that we never meet with complete equality as required by the equations of algebra, or with perfect circles or triangles, as employed in geometry. This assumed contrast between idealisation and experience hardly exists, however. We here confuse what a later very complex physical and chemical knowledge teaches us with what direct sense observation shows us. Our sense observation very often shows us complete likenesses and perfect figures in the surrounding world. When for instance I observe a large stone on the beach today and return to the beach tomorrow and see the same stone, these two images of the stone itself—if nothing unusual has happened in the meanwhile—will, precisely to my *direct sense observation*, be *completely like* each other, as pointed out above in another context. It is presumably from this very impression of complete likeness in experience that mathematics has derived its idea of complete equality. For this then we need no idealisation of our experience. Even between *two* similar things, for instance two metal balls of equal size, our *direct* sense observation will often receive an impression of complete similarity. It is in fact only a *later*, very close inspection, and a *later speculative reflection*, assisted by physics and chemistry, the molecular and atomic theories, that induce us to revise our direct impression of complete likeness and assume that in both the cases mentioned there must nevertheless have been small differences, e. g. in some few places some dots of colour in one ball not found in the other, or in the observation of the same thing other positions of the molecules today or fewer molecules than yesterday, and the like.

The same applies to geometrical figures. It is beyond doubt that we sometimes, *directly* and *without reflection*, receive a sense impression of a *perfect circle*, e. g. of the full moon or of the sun when towards the evening it sinks blood-red into the sea. Here too it is a later, closer observation through an astronomical telescope and later physical delibe-

ration which disturbs that ideal of perfection of shape which was given us by our first direct sense impression.

Thus mathematics has not on the whole stood in need of any idealisation on the part of our active mind in order to set up its ideals of complete equality and of perfect figures. Experience in the sense of direct sense impressions has been able to give both to mathematics.

—Two of the most abstract ideas are the *infinity of space* and the *infinity of time* or *eternity*. Nothing in experience corresponds to these ideas. There neither exist infinite numbers—numbers of bodies—or infinitely large bodies or spaces, or an infinitely long time. All our sense observations only show us finite numbers, sizes, and times. Nor do we know any infinite divisibility; therefore Zenon's example with the swift Achilles who never overtakes the tortoise because he always only traverses half the distance to the tortoise is misleading, if only for the reason that we can never in experience meet with an infinite divisibility of size, of extension, or of distance. No finite quantity can in our experience be divided into an infinite number of small quantities or points; no finite line has in our experience an infinite number of points; as *Hjelmslev* has rightly pointed out. Further, in our experience time cannot, either, be divided into an infinite number of short moments.

Hence it is not through our sensing that we have obtained our idea of infinity either in space or time, whereas, so far as I can see, we have obtained it through our distinguishing and comparing. For even if we think of or imagine a vast space, our distinguishing faculty will at once draw a sharp distinction between it and something *outside* this space, and even if we add further space to this, we shall again distinguish between this extended space and something outside it, and collate or compare these spaces with each other and so forth. We cannot stop in our ideas of space, since our distinguishing constantly adds new spaces and compares them with the former ones. Here too perhaps a visualisation or imagining, carrying on reality, comes into play in

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Different from idealisations are the mathematical *abstractions*, e. g. the mathematical line which has only length but not breadth, the mathematical surface which has only length and breadth but no thickness and the like. Sometimes we see the word idealisation used about these abstractions too. This does not seem to me to be a correct term. The abstractions merely express that it is psychologically possible to *distinguish* between various qualities of the things and keep them sharply apart in thought, whereas they are not made perfect or idealised.

conection with our distinguishing and comparing faculty in contrast to what is generally understood by imagination, the combining imagination which consists in our combining elements from our sense experience in another way than they occur in this experience, e. g. the body of a horse with the upper part of a man, a centaur.

Incidentally, our distinguishing and our visualisation or imagining which continues reality are constantly proved right by our sense experience, in so far as astronomical observations show that the larger telescopes we get, the larger does space grow to us, so that we can now, with the present huge telescope lenses, establish distance in space of a marvellous magnitude, many hundred million light years. But whether space is really infinite or finite is not settled.

The same mental factors, our distinguishing and comparing and the visualisation or imagination carrying on reality have also created our idea of the infinity of time, eternity.—By means of the same faculties we can go on dividing finite quantities ad infinitum, that is to say, until our distinguishing and visualisation grow tired of it.

Such highly abstract and vague ideas as infinite space and eternity we cannot of course vitualise in any definite concrete form. We use some exceedingly vague elements of vision, indeterminate grey or dark spaces or lines without contours to represent to us infinite space or infinite time which our distinguishing thought and imagination alone have created.

The circumstance that, on the one hand, our mind cannot conceive that space or time stops or that a quantity is only divisible up to a certain point, and that, on the other hand, we cannot either conceive or imagine infinite space, infinite time, and infinite divisibility and infinitesimally small elements, shows that we have reached the limits of our knowledge. It is possible that our conception of time and space is subjective, but about this we know nothing. All thought on this subject is, as previously pointed out, merely speculation incapable of proof.

In our experience we can only operate with finite spaces, finite periods,

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Within the branch of mathematics that is termed the infinitesimal calculus (the integral and differential calculus), as is well known, we operate in thought with an infinite number of infinitesimal quantities. Already Galileo here met with the problem of infinity in the paradox that the infinite quantity of all positive integers (1, 2, 3, etc.) is equal to the corresponding quantity of the squares of all numbers, though these only constitute part of the integers. Galileo resolves the paradox by the reflection that our notions "equal" and "part" are defined for application to finite quantities and are not applicable to infinite quantities.

and finite small quantities, for experience never shows us anything but finite spaces, periods, and quantities.

—What we usually call imagination, namely the faculty of combining conceptions is inconceivable without the distinguishing faculty. We separate individual elements in our experiences from the whole experience, detach them from this whole, e. g. the upper part of the body of a man, and after detaching them we combine them with impressions from other experiences, with elements that are likewise separated from and detached from their connection, e. g. the legs of an animal, and form the imaginary figure of a faun.

Philosophy has often tended to overestimate one of the human faculties of cognition at the expense of the others. This applies in special degree to the synthesising and comparing faculty. For this leads to a simplification of the concepts, to the apprehension of existence in larger and larger units, its ultimate consequence being the conception of the entire universe as one single concept. Thus we meet with this tendency in Spinoza's universal substance, in Hobbes' material substance, in the all-embracing concepts of the romantic philosophy. Common to them all is the overlooking or elimination of the differences in existence. The synthesising and comparing faculty is overaccentuated at the expense of the distinguishing faculty. Thus for instance all differences in Spinoza's all-embracing substance disappear. Here there is probably often something individual in the mental disposition of the various philosophers. Some have a disposition to synthesise, i. e. they chiefly see the similarities in existence, the common, comprehensive features. Others have an analytical mind, are chiefly inclined to see the differences. These dispositions are rarely balanced. To the excessively analytical natures the world falls to pieces in multiple small parts in a chaotic confusion; they have no general view of or fixed lines in the substance. The excessively synthetic natures have no eye for the profound differences and finer shades of existence; and their all-embracing concepts are empty. They do not see that the more comprehensive a concept becomes, the more empty does it become.

All mental processes may presumably be regarded as a synthesis. Even in our distinguishing between two simple sensations, e. g. between red and yellow, there is, as previously pointed out, a synthesis or retention in the mind at the same moment of two impressions, since the yellow that I am now sensing could not be destinguished from red at all, if I had not now at the same moment a sensation or notion of red. But this synthesis is divided precisely into two profoundly different kinds,

a distinguishing and a comparing. In the example just mentioned the synthesis consists in an act of distinguishing; but just as often it consists in an act of comparing; the finding of a likeness for instance between the red flower yesterday and the red flower today. But the word "synthesis" has acquired a particular meaning that onesidedly accentuates the likeness, the unity, which is not actually implied in the word. We speak of all-embracing syntheses as something our cognition aims at. This is not correct. We have no indication at all that likenesses give a truer knowledge than differences. There are irreducible, fundamental differences in existence, e. g. between the external and internal worlds, the physical and the mental, which it is idle speculation to try to bridge. In addition there is, in the physical world the fundamental difference between the organic and the inorganic worlds between which it has not, at any rate so far, been possible to find any connection. Within the mental world there are the profound differences between sensations and ideas, between ideas and emotions, between pleasure and pain etc. *Mach* emphasises that our cognition aims at simplification of the multiplicity of different facts in existence; in this there is the truth that we try, especially by means of the general concepts, to obtain a general view of larger or smaller spheres of existence. But this simplification must not be overaccentuated. The general concepts merely establish likeness within the fields where the sense observations show likeness, but at the same time difference from the larger or smaller fields dominated by other general concepts. In other words, there are limits to the simplification. *Meyerson* really makes the same attempt at simplification as Mach, however much he thinks he differs from the latter in the fundamental view. The identity that Meyerson seeks throughout the universe, proposing, as he does, to reduce all changes to motions of the same eternal immutable particles or to the operation of the same eternal forces, is a striving after a vast simplification of the universe. But the great fundamental differences of the universe, especially in movements and in the numbers of units, show that even in our apprehension of the depths of the universe our cognition meets not only with vast likenesses but also with vast ineradicable differences. The human mind has a craving to reach a final terminating concept, to which all chains of thought lead, to find rest in an all-embracing thought or concept instead of going on concluding from thought to thought (in a so-called infinite regress). The idea of such a terminating all-embracing concept, however, is due to an illusion. Experience shows that our views of the world change. The old Greek nature philosophers and

the speculative system philosophers of the 16th and 17th centuries as well as the 19th century romanticists with their world-embracing views all had to succumb to the law of decay. Modern natural science, which has limited itself to the material part of existence, has also developed a view of the world for this part. But whether this view of the world, the atomic theory of our day, can be maintained we do not know. Natural science, as we know, has previously experienced the most revolutionary changes in its picture of the world, namely from the Ptolemaic to the Copernican system.

Presumably, then, we shall not be able to find anything fixed, unchangeable in a comprehensive, terminating concept, in this or that picture of the universe, but only in the fundamental human faculties of cognition or factors of cognition, which create all our views, both the more and the less comprehensive, and which, after constantly renewed testing, change and revise sometimes one, sometimes another of these views,—the factors of cognition 1—6. These faculties of cognition survive, while views of the world perish.

CHAPTER 10

CAN SCIENCE BE VALIDATED? KNOWLEDGE AND EVALUATION.

As shown above, in all science, formal as well as practical, we can ultimately trace back all knowledge, all cognition, all argumentation, as a recognition from link to link, to the final fundamental faculties or factors of cognition pointed out above. But these very factors of cognition, these fundamental ideas of all knowledge and science: likeness and difference and law-governed interrelation between our experiences (thereunder time and space) consequently cannot be proved themselves by any kind of further process of recognition; behind them there is nothing more to be known, to recognise; at these fundamental ideas all series of thoughts, all chains of evidence cease. We cannot go any further. Whether or not these final ideas give us true knowledge or a picture of existence itself we do not know, as we have already stated.

But if these final factors of cognition, the foundations of all science, thus cannot themselves be scientifically proved by the generally accepted methods of recognition, does this mean that all science which is so essential a part of the whole civilisation of mankind is ultimately quite uncertain, without solid foundation? Does it mean that according to this state of science the way is actually left open for the most subjective, arbitrary schools of thought, that truth, as has also been maintained, is subjectivity, that the mystical notions of certain social and religious schools are just as good as the fundamental scientific ideas, seeing that one of them can be proved? The extreme fanatical schools of our day whose opinions are interwoven with a lot of unprovable mystical but absolutely self-confident views, actually hold that science, objective scientific truth, does not exist, that onesidedness is strength; and these extreme schools try socially, morally, religiously, and scientifically to obtrude their views on all others, to turn all intellectual life, even science, in one direction. And the only proof of the truth of a view

will then be that it actually conquers by force, is imposed upon everybody.

But can these schools be blamed at all? If nothing can be proved, not even science, then the tenets of the latter and all other views in reality depend on a belief. And if everything thus becomes a matter of faith, the way will be open to all religious convictions, the most antagonistic and extreme, both social, religious and others; and the criterion of their truth must be, therefore, whether they actually succeed in turning everybody in the same direction and forcing them all to submit to them. In the whole tremendous crisis, political, social, religious, and spiritual, which our time is undergoing, this problem will be fraught with destiny not only for science but for the whole future of human civilisation.

But this problem of the foundation or lack of foundation of all our knowledge is not of course confined to any particular period, even though it is of a special, fatal importance to mankind in the present great crisis of civilisation. This problem is eternal; it existed in the time of Socrates and in the time of Locke; and it exists in our time and will exist in the future. But the problem has not been correctly formulated before. In my opinion it should be formulated thus:

If the final factors of cognition, if the fundamental ideas, on which all science is based cannot be proved by its own methods, by its own usual ways of cognition, can they, then, be proved in any other way?

The reason why it has been impossible to solve this problem of *the final validation* of the factors of cognition, and thus of *science*, is in my opinion that men, both in science and in their ordinary views, often only think piecemeal, in separate columns, not in the large interrelations existing even between the apparently most fundamentally different spheres. In science, again, the strange thing sometimes happens that precisely the greatest and most acute thinkers draw the deepest distinctions between the phenomena, distinctions which, through the authority of their authors, become a permanent division as between two worlds that have nothing to do with each other, so that nobody thinks of looking from one of them into the other; and it does not occur to anybody that in life itself there is a close interrelation between the two spheres thus separated by men. What life has joined together men should not separate. But this is what is frequently done, even by the greatest thinkers, through a fragmentary thinking. It is quite understandable that precisely the clearest and most thorough thinkers have a tendency to draw *sharp* distinctions between the phenomena, in a natural desire to restore

order among the phenomena and put them in place. Some of these sharp, profound distinctions are true, lasting, others are not, but must fall away before a still more thorough investigation.

In the preceding part it was shown how the deep distinction which the great 18th century thinkers Locke, Berkeley, Hume and Kant made between two apparently widely different parts of our cognition, *the sensations* and *the relations* had the most unfortunate consequence and gave the whole epistemology of the 18th, 19th, and 20th centuries a wrong attitude which has prevailed ever since and has carried thinking into a series of basic delusions, and at last into a general mental confusion, which leads on to quite unnatural and unfounded assertions about fundamental concepts such as the external world, the internal world, the fundamental concept of reality, the apprehension of difference and likeness and the like.

But there is another great distinction which thinkers in ancient times had already occasionally touched upon but which was much elaborated in the more comprehensive and systematic treatment of the epistemological psychology founded by the above-mentioned 18th century philosophers. And this deep distinction has also widely marked thinking up to the present. This distinction is the distinction within the human mind between cognition, emotion, and volition, or—if we use a bipartition that indicates the contrast between the cognitive aspect and other aspects of human nature—the distinction between *intellectual life* in a wider sense, i. e. sensations, ideas, and relations, and *emotional* and *volitional life.*

Actually these two aspects of human nature cannot be separated any more than sensations and relations, but like these two they are closely associated organically. At bottom, our cognition cannot be separated from emotion and volition. So far as I can see, there is in every single *act of cognition* (sensations or ideas in relations) also and inseparably associated with the element of cognition *an emotion* and *a volitional decision.*

Presumably no single sensation or idea rises in our mind which is not accompanied by an emotion, more or less strong. This emotion may be obliterated or fade away amid the habitual or routine-like character of the daily sensations and ideas; but no sensation or idea arises in us without being responded to by a feeling, vague or more definite, more or less instinctive or conscious, of the relation of this sensation or idea to our vital need. Some sensations and ideas immediately upon their occurrence arouse in us a strong feeling of pleasure or pain, sometimes

the strongest passions; others merely arouse vague indefinite emotions; but always the organism reacts to the relation to our vital needs of the invading sensations or the arising ideas. And inseparably bound up with emotional responses in our organism are our volitional decisions from the strongest to the weakest, from the most direct and positive to the most vague and negative.

In my opinion our basic scientific concepts would not come into existence at all without this emotional and volitional reaction of the human mind. In the preceding part I have tried to show that even our scientific fundamental concept of reality would not arise if our distinguishing and comparing faculty had not during the experience of thousands of years distinguished between those sensations that come and go independently of our will and which again and again do not satisfy our vital needs but even excite a feeling of pain or dislike, and the opposite states. Further I have presumably demonstrated that our concept of causation, our apprehension of law-bound interrelations in their ultimate origin, first arose out of our experiences of pain and our volitional decisions.

But the emotional and volitional element, as I shall try to show, goes still deeper in the human mind and must in reality be inseparably bound up with every single sensation and relation. If we have gradually, during the evolution of the human mind through thousands of years, got into the way of observing by the senses, of distinguishing between the separate sensations and comparing them, grouping them according to differences and likenesses (general concepts) and conceiving them in law-governed connections, there can at bottom only be found one single motive for this, one single reason, namely that this observation, distinguishing, comparing, and apprehension of law-boundness has been accompanied by feelings which summed up in the course of times have predominantly been feelings of satisfaction to mankind.

If we seek other explanations they will prove to be detours. If they are followed up they will finally bring one to the explanation already given.

Of other possible explanations two are conceivable. One must be that if we assume that there is an external world, it is the bodies in this world and the changes in them, the differences and likenesses and law-governed interrelations between them that force upon us the sensations and our apprehension of likenesses and differences and law-bound interrelation between them. The whole of this reality we have been obliged to defer to, come to terms with, and absorb in our mind, whether this

absorption gives us a wholly true or merely a partially true picture of the reality. To this we must add, however, that if we defer to and come to terms with this external reality it is in the last instance because it is to our advantage to do so since, as mentioned above, we have for thousands or millions of years experienced, that is to say, felt through pain or pleasure, through innumerable experiences of suffering and satisfaction, that our sensations in the connection of the relations are the solid foundation on which we must base our life and all our activities, if we want to attain the greatest possible satisfaction of our needs and relatively the fewest sufferings.

The other possible explanation is the *Kantian*, which is to the effect that our apprehension of difference, likeness, causation, space and time are general, necessary forms of our cognition, the structure of our intelligence being such that it can only conceive in terms of likeness, difference, causation, time and space. But to this we must say that, quite apart from the circumstance that it cannot be proved that difference and likeness, causation etc. are forms inherent in the structure of our mind, Kant's whole view is what I would call an isolation view, i. e. a view which keeps to a single isolated sphere, here the intellectual, the cognitive aspect of human nature, though in the presentation of the problem this sphere is closely associated with the other side of human nature, that of emotion and volition. For if difference and likeness, causation etc. were forms that alone were inherent in the structure of our mind but which never gave any feeling of satisfaction but always the opposite, always pain and aversion, our organism would no doubt in the long run change these forms, abandon them; but they would never through the thousands of years in the evolution of the human brain have come into existence at all as faculties of cognition if they had not during this long chain of the years quite predominantly given men a feeling of satisfying their needs and evoked volitional decisions according herewith.

Hence: whether our factors of cognition, the observations in the connection of the relations, and with them all our knowledge, are derived solely from an action on our mind from the external world, or from the structure of our mind, or are due to a mixture of both, in the last instance no other motive or other reason for all cognition and its factors can be conceived than emotions and volitional decisions.

The fundamental concept of knowledge itself, the concept of reality, has been created by our factors of cognition 1—6 in co-operation, particularly 1 and 2, our apprehension of difference and likeness and law-boundness; but we can only have arrived at and can only motivate all

the factors of our cognition by the circumstance that throughout life mankind has felt relatively the greatest satisfaction by using precisely these factors of cognition.

Hence in the depths of our soul our distinguishing and comparing, our apprehension of law-governed interrelations, our emotions and volitional decisions are closely bound together; and it is only by too sharp distinctions, abstractions, that we can separate them from each other. At any rate, in the cooperation between these factors there lies concealed a fundamental faculty which it is difficult to grasp and define but which is presumably in reality the source of all human knowledge and action.

We distinguish (1) between the different sensations and between those of them that are associated with feelings of satisfaction or pleasure and those which evoke pain; and when they return, as they constantly do, we recognise them, that is to say, we find (2) a likeness between the sensations within the two groups. But further we observe that these sensations return (3) in regular combination with other sensations so that we divine beforehand that in such and such combinations or series feelings of satisfaction or pleasure will arise, and in such and such combinations or series a lack of satisfaction or a pain arises. But at the same time it turns out that human nature (4) has a power *to choose in advance* those combinations of sensations that give a feeling of satisfaction and to avoid those which give dissatisfaction or pain. We can hardly characterise this choice otherwise than as an act of volition. But in reality the whole of this psychic process, which we have here separated into 4 components, presumably happens as one continuous closely coherent process in which we as it were *feel our way* among the many combinations of sensations, distinguishing and comparing those that give pleasure or pain, and instinctively selecting among them the former, more and more regularly through the law-governed series. It is difficult to find a word that covers this combined psychic process, this basic experience of or basic attitude towards existence. We might perhaps coin the word a *feeling-ahead.* In this lies as in a common embryo the germ of all human cognition and all human action. We sense and feel our way ahead in existence, instinctively avoiding or warding off pain and seeking satisfaction primarily of vital needs. This feeling-ahead is presumably the vital nerve not only in us but in all living beings, from the simplest cells, from plants to animals and men.

In the simple, primitive, direct experience of a sensation of the world, a pain through it, a warding off movement and a movement to gain satisfaction is combined in a sum the first response of all living beings, of all plant, animal, and human life, to the attack on or conduct towards the organism of the world or existence. Only later do we distinguish between the sensation, the emotion, and the movement in this experience.

The organism instinctively feels its way to the conduct most satisfactory to its needs—whether it be action or a passive attitude. It experiences a pain or a satisfaction and instinctively feels or senses its way forward to that in the surroundings which evokes pain or satisfaction, that which

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Instinctively the organism performs metabolic movements, altogether movements to preserve life, particularly for the intake of the substances or food necessary for this. But if this does not happen, pain comes (hunger) as the danger signal to the organism. The simplest organisms, e. g. the amoebae, move by first extending part of themselves, an "arm" and then drawing the rest of the cell after them, the remainder of their protoplasm flowing into this part. In some instances these movements are instinctive metabolic movements; in other cases they are movements caused directly by pain, whether it be because of attacks from without, because of the lack of the satisfaction of vital needs, or because of a feeling of satisfaction or pleasure.

The movements the organisms perform for the preservation of life are indeed numerous and varied: metabolic movements, growth movements, movements due to pain, movements to ward off pain or attacks from without, movements to obtain sensations of pleasure, and others. The movements are of two kinds: (1) such in which individual parts, but not the whole organism, change their place, and (2) such in which the whole organism changes its place. The latter movements are called the locomotor movements. Plants of course have (1), namely growth movements (downward into the soil, upward towards the light), metabolic movements; and not a few plants fold up upon violent attacks upon their organisms. There are even plants that can perform locomotor movements.

Even the lowest animal and plant organisms exhibit a behaviour that aims at self-preservation. A jellyfish moves forward and draws back, and by doing so it shows a certain vague, slow feeling or sensation of causation or law-bound interrelation with the world around it, in order to avoid danger and gain satisfaction.

In what follows I shall in the main use the term satisfaction and not words such as pleasure, happiness, etc, for the term satisfaction is more comprehensive than pleasure, happiness, and the like. The organism will seek satisfaction of vital needs, no matter whether this satisfaction in itself, at the moment of gratification, is combined with any feeling of pleasure. Altogether, the word satisfaction includes both the removal of pain, hereunder that which is derived from lacking satisfaction of vital needs, and the gaining of pleasure.

we later call a cause; and at the same time it has an experience of an instinctive process in itself for the warding off of suffering or the obtaining of satisfaction, the organism discovering in itself a power of moving in the surrounding world. During this the organism learns that it has a certain control of its external movements and is thus to some extent able to choose new sensations from without and thus to avoid the previously experienced pain, and to obtain a feeling of satisfaction.

In more advanced stages man makes the conscious and persistent choice of movements on the basis of likenesses and differences and law-bound interrelations for the warding off of danger and the satisfaction of needs, which we call work. The work of mankind, taken in its entirety through the ages, proves to be a working-ahead. The groping instinctive feeling-ahead becomes more and more a planned conscious working-ahead.

Involuntarily, during the feeling-ahead and working of mankind through thousands of years a higher type works its way forward, though we cannot explain how this happens. We can merely note the fact that the present type of man has arisen from a type such as Neanderthal man. During the feeling and working ahead a new type of man is forced out of the primitive soil of life and there is no reason to believe that the present ordinary type of man will be the last mutation.

In the feeling-ahead, the past, the present, and the future cannot be separated. Incessantly we experience a distinguishing between and comparing of satisfaction and pain and the regular combinations into which these two experiences enter. We experience this *now*, at this moment, and involuntarily we project this experience to the moments *now coming;* but next we experience in ourselves a faculty, a power of choosing by a leap in the dark into the near future, a certain combination, a power of willing and realising sensations in the definitely law-bound interrelation which has proved to give and proves to give the greatest satisfaction. We *will* this combination, both in the sense of the future and in the sense of a volitional act.

This, however, does not apply solely to the external movements of our bodies, but also to our inner states. Thus we discover that to a certain degree we have the power to suppress or drive away ideas that give us pain and choose other ideas that give us pleasure or satisfaction.

But from first to last this power of choosing applies to our cognition itself. Every leap into the future, both in the choice of external movements and of inner conditions, implies—and implies above all—that

we rely on our distinguishing and comparing and our apprehension of law-bound interrelations. Why so? It can only be because through innumerable feelings-ahead during the life and evolution of the whole of mankind we have learned that, by following our faculty of distinguishing and comparing and our faculty of observing law-boundness, we have obtained the greatest number of feelings of satisfaction and relatively the fewest sufferings.

Hence it is not only in the choice of what we usually in daily speech call action or omission that our emotion and will decide and dictate to us what act or what omission we shall or should prefer. But in all cognitive acts, in every distinguishing and comparing and finding of law-boundness it is in the last instance also solely our emotion and the volitional act according with it that tell us that we must and should distinguish and compare, and that we must and should find law-bound interrelations, that we must follow the concept of reality emerging from this. From this it will presumably be seen that the earlier philosophy's sharp distinction between cognition and evaluation, between the intellectual and the emotional side of human nature is an abstract, schematic separation of phenomena which at the core are closely bound together in life.

It can then truly be said, as I have presumably shown above, that our logical and mathematical axioms which emerge from our apprehension of difference and likeness, in the last instance are determined by emotion and will, and that the other main pillar of all science, our whole concept of reality, as springing from the same apprehension and from our apprehension of law-bound interrelation, also in the last instance is determined by will and emotion. The same applies to space and time. Space, which is the usual sign of our reality concept is thus a product of our feeling-ahead. We feel our way ahead by means of sensations of sight, motion, and touch to that apprehension of space by which we take our bearings as to distances for use in all our movements, and by which we try, by means of the fewest possible movements to traverse the longest possible distances. In the dawn of time primitive man felt his way forward to the axiom of geometry, that a straight line is the shortest distance between two points, through numerous experiences of pain, that is to say, numerous feelings of weariness at devious ways, disappointments at movements which he finally, by distinguishing and comparing, learned were useless. But gradually as the axiom is thus established and followed, the consciousness of these sensations

of movements and contacts, these feelings of pain, weariness or satisfaction fade, and we are led to believe that we have here a self-evident truth, raised above all sensations and experiences. Thus, just as our apprehension of distance and space leads us through the swarm of all these different kinds of sensations, we are likewise, through our feeling-ahead during distinguishing and comparing and law-bound interrelations led to the fixer order and succession in all the multiplicity of our experiences which our apprehension of time gives us.

The peculiar act, which is both complex and yet constitutes an organic unity, and which I have called the feeling-ahead, is then in my opinion the fundamental faculty in man from which all knowledge and all action spring. It is an intimate co-operation between sensing, ideas, emotions, and will and thus unites in itself:

1. Distinguishing between and comparing of sensations and ideas.
2. Observation of law-bound interrelations between these.
3. A feeling of satisfaction, pleasure and pain.
4. Volitional decision.

If then we ask why we follow our apprehension of likeness and difference and of law-boundness, and thus, as we have already shown, our concept of reality, our conception of space and time and the logical and mathematical axioms, there is in my opinion only one answer: because through numerous feelings of satisfaction and pain we have through thousands of years felt our way forward to these basic conceptions of ours as those which, if we sum up the life of mankind, have yielded a maximum of satisfaction and a minimum of pain, and we can therefore in all truth say that we *ought to* follow them and thus our concept of reality, the concept of space and time connected with them and the logical mathematical axioms.

After this it will presumably be realised that the whole distinction which has hitherto prevailed: between being and having to, between "is" and "ought to be" in the last instance is due to a narrow, limited reasoning, which was not able to sift the problem of science to the bottom. This limited reasoning has erected walls around thought which

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Actually the fundamental faculty pointed out above (1—4) should be called both feeling ahead and willing ahead, but for brevity it will in the following as a rule be called only feeling ahead. The latter is thus not merely a feeling of satisfaction or the opposite—what is implied in the word "feeling"—but also an act of volition which chooses satisfaction—what can be put into the word "ahead".

have prevented a wider outlook and made the fundamental problem both of epistemology and ethics insoluble. If we say that a thing is so and so, e. g. that in the flower *A* there are *x* stamens, or that the metal *B* melts at *y* degrees, this expresses that we make some sense observations and that between these there are certain likenesses and differences and certain law-bound interrelations, and that we rely on these elements of cognition because mankind throughout its evolution has felt its way to the precept that we *ought to* use our sense-observing, distinguishing, comparing faculty as well as our faculty of apprehending law-boundness, space and time; and that consequently we should submit to and follow the reality concept produced by these faculties of cognition. All scientific knowledge, all establishing by cognition that something *is* thus has its final, indeed its sole reason in an ought for mankind.

Our knowledge that something "is" apparently only concerns the past and the present. But when natural science in the examples cited establishes that the flower *A* has *x* stamens, or that the metal *B* melts at *y* degrees, it actually means not only what is linguistically implied in the present tense "is" and "melts", but no less than three things: (1) that we *have* observed that the phenomena *A* and *B* always in *the past* have been succeeded by the phenomena *x* and *y* respectively, and (2) that at this moment, in the present they also prove to be accompanied by *x* and *y*, but *in addition* (3) that in the future too *A* will prove to have *x* stamens and *B* prove to melt at *y* degrees. Thus the natural science proposition is quite *general*, comprising both the past, the present, and the future, though linguistically the proposition has only the form of the present.

But furthermore we learn that we may not only remain passive observers of these natural phenomena, but that we can interfere actively in the causal connections or law-bound interrelations of nature, that by a leap into the future even in planned action we can start what we call causation and in this way, relying on our former experience, we can produce certain effects. Thus we learn that if we ourselves with our hands or with tools place the metal A in a fire and produce a heat of y degrees we shall also ourselves be able to produce the so-called effect, the melting. This deliberate, planned interference in the law-bound interrelations of nature in order to produce certain effects is called a scientific *experiment*. But in this way natural science also discovers that we are able to produce effects experimentally which will benefit mankind. In what follows I will call this kind of experiment the evaluating experiment, in distinction from the experiment that merely ascertains facts.

But an experiment is in reality nothing but a special kind of feeling-ahead, a sub-division of this phenomenon, namely the deliberate, planned feeling-ahead in the field of the external world. That we have so far linguistically limited the word experiment to the objects of *external nature* is purely traditional. For our experience tells us that just as surely as by placing metal in a fire we can cause it to melt, just as surely can we by evoking certain sense observations or ideas cause certain emotions to arise in us, whether it be pleasure or pain. And after this ascertaining experiment we can also in the *psychical* domain, by evoking certain sensations or ideas, cause in ourselves feelings of satisfaction and pleasure. This is well known to us through the sense impressions that directly give rise to feelings of satisfaction, pleasure, e. g. impressions of taste, impressions of art. But in the last instance, as was pointed out above, even the choice of our faculties of cognition can only take place and only be motivated through our emotional life, through the satisfaction of vital needs, through our feeling and willing, our experimentation towards this satisfaction. And we need not actually here include the evolution of mankind through the ages; the evolution can merely throw further light on something which in itself is undeniable. We cannot go outside ourselves. All that we think and do *cannot* in the last instance be founded on anything but the satisfaction of the vital needs, on human emotional life, on the attitude of the latter, in its entirety, towards existence.

Distinguishing and comparing are no doubt in the first stage of all organic life exclusively a distinguishing between pleasure and pain. No distinguishing without the two basic phenomena pleasure and pain, and no pleasure and pain without distinguishing—and comparing, when they recur. All cognition and all emotion and action have thus in the last instance their origin in the same simple basic phenomenon in all organic life, distinguishing and comparing, pleasure and pain. These four words in this the very first organic stage are all merely an expression of the same thing. What later on becomes two sets of separable phenomena, an intellectual: distinguishing and comparing, and an emotional: pleasure and pain, are from the first merely two aspects of the same thing, the same primal phenomenon. To distinguish and to compare was to feel pleasure and pain, and to feel pleasure and pain was to distinguish and to compare. But in this simple primal experience of pleasure and pain, difference and likeness, there must simultaneously have been a distinction between the self which feels pleasure and pain and something that causes pleasure and pain to the self, that is to say,

a surrounding world. So deep and so primordial in organic life is this contrast, this distinction between an external and an internal world. All life is perhaps actually in the first place a feeling of contrast, a distinction between one's self and a surrounding world that sometimes gives pleasure and sometimes pain. And in the last instance and everywhere life remains so until the end.

But at the very moment that we have, through our primal faculty, distinguishing and comparing, pleasure and pain, established an external reality different from the self, then, with this very reality, whose distinctive feature is that it is independent of our emotion and will, there has been generated a criterion of truth which is absolute in the sense that according to this the truth of every idea, opinion, and theory must in the first place be judged according to whether it agrees with this reality and its law-bound and logical coherence, the causality, differences and likenesses of the external world, hereunder numbers and magnitudes, no matter whether this reality test in the case of the individual ideas or opinions gives us pleasure or pain. It is the basic epistemological error of such schools as pragmatism that they have considered themselves capable of finding an easy criterion of the truth or falseness of every idea or opinion in its usefulness or harmfulness to mankind, that is, in the estimation of whether it chiefly gives pain or pleasure, asserting as they do that there is no other criterion of truth, no absolute truth. Pragmatism, like every movement started by laymen, tries to get round the wall which even the deepest satisfaction of the needs of mankind has raised against all arbitrary or fantastic views in the *reality concept*. There is only one single absolutely valid rectification of all views, opinions, theories about the world, and that is *reality, its law-boundness and logical axioms*. A rectification of opinions according to the emotions of large groups of men, by means of a particular, concrete view, as often seen in present-day fanatic schools and movements of lay origin, is scientifically false. No emotionally accentuated view of one kind or another, but solely the unshakable reality of the external world and its law-bound and logical interrelations can give us security and stability as the foundation of all our actions, of the thinking and doing of all our life; and by basing all our actions on this we gain that control of nature which is the source of innumerable profitable results for mankind.

That control is due to the fact that, as emphasised above, we can to a certain extent, on the basis of reality, by utilising the law-bound interrelations of the external world, produce the effects we desire. The feeling-ahead to our faculties of cognition and the reality concept based

on them is the same process, though unconscious, which we later in the tratment of the external world with our hands or with implements, for a deliberate purpose, call an experiment. But it will appear from this that what I call the ascertaining experiment is, at bottom, evaluating, for all cognitive processes are in my opinion an evaluating experiment.

Hence the experiment is not limited to natural science, it is only apparently that it has won its greatest victories for mankind here. Actually the planned intervention in the law-governed interrelations of nature which is the essence of experimenting, both in the ascertaining and the evaluating experiment, underlies all human progress in all spheres, indeed all human work. And the ascertaining and the evaluating experiment are imperceptibly merged in each other. During the evolution of mankind one day, at the dawn of time, a man discovered that two stones striking against each other produced fire. He then imitated nature in the escertaining experiment of striking two stones held in his hands against each other and saw that sparks could be produced in this way. But here too he soon reached the evaluating experiment of using the sparks thus kindled to light a fire by which to warm himself and after that, step by step, during the evolution through long ages, to use it for many other purposes; to spread light in the darkness, and when metals had been found, to melt and temper these etc. Through similar ascertaining and evaluating experiments men discovered that they could produce an effect on and transform things, substances in nature, into objects that might be useful to them, and so they gradually invented: implements, clothes, weapons, waggons, boats, ships; then they learned how to take certain animals into their service, especially cattle and horses which already in the nomadic stage they had made useful to them in various ways; later they discovered, likewise through the ascertaining and evaluating experiment, that seed sown in the soil, first by the wind later by the hand of man, grows up and yields crops which may be used as food for man and animals. Then follows settlement and the invention of the fixed house with surrounding cultivated soil. All later occupations and their progress, the handicrafts, agriculture, shipping, fishery and the like with all their implements and methods have arisen entirely through experiment, the *ascertaining* and the *evaluating experiment* in close co-operation. Later on, experiment sustains all natural science and the uninterrupted co-operation between the occupations and natural science which creates the whole of modern technique, which again is only a continuation of the progress from the earlier handicraft stages. From the old primitive implements to the working of wood,

metals, to the production of stuffs, agricultural implements, waggons, and ships, man has through thousands of years quite gradually worked his way forward by experiment, utilising the law-bound interrelations, to the whole modern machine technique in all these fields, and to the intense co-operation between science and the occupations denoted by the many so-called *applied or technical sciences*, such as building- harbour- bridge- and hydraulic engineering, industrial chemistry etc.

But in addition man discovers that through observation and utilisation of law-governed interrelations in his own body he can produce effects of benefit to the latter. But through the development of the applied science thus emerging, i. e. medical science, man is involuntarily and irresistibly led by quite gradual transitions to observe and utilise the psychic law-bound interrelations. When physiology establishes by the ascertaining experiment, and medical science by the evaluating experiment, that the taking a certain substances has a beneficical effect on the organism, but that the taking of others, e. g. alcohol, cocaine, in large amounts has a harmful effect on the organism, we are at the same time necessarily led to observe certain psychic interrelations and to note that man is to a certain extent able to choose between these effects and thus control his inclination for an exaggerated use of the said stimulants. Hence the ascertaining and evaluating experiment leads us with inevitable consistency by way of physiology, medicine, and psychology into a new scientific domain, which has so far been treated rather casually and arbitrarily in traditional morals and religion, and without any real proof or method in that part of philosophy which is called individual ethics. Here we are in great need of material of scientifically objective and accurate experiences. In what follows I will try to treat this problem in more detail. But so much can presumably be established already at this stage that, though the dogmas of traditional morals and religion must indeed be received with respect because they express the experience of mankind through thousands of years, these dogmas are no longer sufficient for mankind. Man must demand a *reason*, and only a scientific, objective investigation of the psychic phenomena: the wishes, passions, impulses, and the law-bound interrelations between these and their effects can prepare the way for the right principles and laws for human conduct. In this place it will suffice to point out, as will be further illustrated in detail later, that during his evolution from lower to higher stages man has proved to be in possession of all special psychical quality peculiar to him, namely the above-mentioned power of controlling his mental life within certain limits. Here too it is, in my opinion, through

the ascertaining and evaluating experiment that man, in the psychical field, as earlier in the physical world, makes the discovery that he can turn his soul life, his thoughts and wishes, into certain definite channels with beneficial effects, and turn them away from others which experience has shown will involve harmful consequences. Europe constitutes a very small part of the whole terrestrial area of our globe compared with the other continents, and in addition the greater part of it has a rather inclement climate and difficult physical conditions. But it is no accident that precisely the peoples of this small continent and emigrants from it, with their superior technique and practical ability in all fields, have become the leading race and altogether the rulers of the rest of the world. In Europe men had to wrest fertility from the soil in an unceasing hard struggle; the originally vast stretches of forest, bog, and moor had to be cleared, drained, cultivated; the greatest difficulties besetting intercourse between the countries, separated everywhere by mountains, oceans, deep bays and the like had to be overcome; and simultaneously with all this work the comparatively cold climate in the greater part of the area during six months of the year made a constant fight for better dwellings and clothes a necessity. In all fields, clearing, draining, cultivation of the soil, intercourse, the building of houses and making of clothes, the hard and difficult physical conditions of this continent were bound to develop in the races that inhabited it considerable qualities in the form of hardiness, frugality, self-control, and a comprehensive mechanical genius and inventiveness. Hence the first-mentioned qualities, which we generally call moral, especially the love of labour, and self-control in all its forms, have grown up by just as natural a necessity from the basic soil of life, through the ascertaining and evaluating experimentation of mankind, as vehicles, buildings, ships, machines, and all later technics and science. The cultural value denoted by these human qualities, which are the fruit of a long development on the road of suffering traversed by the human race, may by a brief term be called *character*—in a qualitative sense—or character value. All human experience of life shows that the sum of qualities which we call character is of signal importance for what the individual makes of his life—as a rule more than talent or external circumstances. As the old philosopher of the Renaissance said—turning against medieval superstition—"not in the stars but in his character is a man's fate written".

But in exactly the same manner men have, by a multiplicity of ascertaining and evaluating experiments through thousands of years, during suffering, labour, and recompense, groped and felt their way ahead to

another cultural value, indispensable to mankind, namely *the human community*. In the struggle against the manifold dangers from surrounding nature, in the endeavour to conquer the earth, control the forces of nature, and create new values, the phenomenon which we call the community has turned out to be the chief protection and defence, the only means of securing working peace and life for the individual. The community has, partly by the co-operation of men in a number of ways created (1) a defence against the dangers of nature and an organised utilisation of its forces, and partly by a strong social power (2) attempted to prevent men from harming each other. In all human communities through the ages, in all law-books, from Hammurabi's Law and the Decalogue to the penal codes of present-day communities, we hear the elementary commandment: Thou shalt not harm thy fellow men. The laws specialise this commandment in various acts: Thou shalt not kill; thou shalt not steal; thou shalt not bear false witness against thy neighbour; thou shalt not injure his honour, and the like. But all these specialised rules can be summed up in this one commandment: Thou shalt not harm thy neighbour. This commandment comes not only from the law-books of all communities, but is a leading principle which pervades all the legal and moral rules in the whole of this field, all intercourse among men. The reason why men in all spheres of life have arrived at this commandment as the most fundamental one of all, is presumably in the first place that the observation of this commandment at any rate saves men from the sufferings they inflict on each other, and creates working peace for the individual. The indispensable prerequisite for human achievement by industry, inventiveness, and initiative is that men have peace for their work, that there is security in the community for the activities of the individual, that other people are prevented from interfering and doing harm. In the earliest primitive ages too much valuable working time was lost because the individual, metaphorically speaking, had to work with the trowel in one hand and the sword in the other; for at the same time as working, he had unceasingly to protect himself from enemies from without. The modern communities have secured working peace for the individual by taking possession of the sword and forcing men by the executioner's axe or other harsh means not to kill, hurt, or in other ways harm the peaceful worker.

But the feeling ahead, the ascertaining and evaluating experimental method not only underlies all human occupation, all technique, all morals and all rights, ultimately it underlies all *art*. Mankind has, consciously or unconsciously, through thousands of years, felt, experimented its

way forward to the discovery that certain definite impressions, arranged in a special way, produce a pleasurable effect, certain others the opposite. But it is with esthetics as with ethics. We lack, partly a large material of objective experiences, and partly a sure scientific method of establishing in more detail to what elements it is due that certain impressions produce a pleasurable effect, while others do not; hence, as in modern morals, the greatest confusion and perplexity prevails in modern art too, both in painting, sculpture, and architecture. Therefore, amongst other things, the towns of our day exhibit a chaos of the most different styles, of comfused experiments, and a consequent jumbled building. Our age is an age of decay both morally, esthetically, politically, and spiritually. But just as we can, as I will try to show, by means of a sure scientific experimental method arrive at definite results, at certain fundamental lines of human conduct, in the fields where up to now a traditional morality and law without foundation and without clarity has been groping blindly, so also in the esthetic field, by an objective experimental scientific method we shall be able to arrive at an understanding of why certain impressions of sight and hearing produce pleasurable effects, others the opposite. Here too, so far as I can see, we shall be able to find our way to definite lines of tendency, showing that only particular, characteristic arrangements of spatial, colour, and acoustic conditions produce the impression elevating and enriching men which we call beauty, and indicating what these peculiar arrangements of impressions are.

According to our statement above, it may then presumably be established that the human cultural values: science, trade, technique, character, community, and art, have all arisen from and can only be founded on man's feeling-ahead or experimenting his way forward to cognitive factors, to forms of work and occupation, to lines of character, to social organisation and legal rules for it, and to the special arrangements of sense impressions which are called beauty. All the culture of mankind, all man's activities and work, and science too, are thus ultimately founded on an evaluation. The foregoing investigation of the human cognitive faculties or factors of cognition shows that even these factors on which all knowledge depends, can only be proved by and founded on an evaluation, and that in the very last resort, therefore, we may just as well say that we *ought to* (shall and must) use our sense observation, our apprehension of differences and likenesses, of law-bound interrelations, time and space, as we can say *that* we must close the electric circuit

if we want to obtain certian definite effects, or *that* we must mix the substance *X* with the substance *Y* if we want to produce the substance *Z*, *that* we must use the construction *X* to produce a certain bridge *Y*, *that* we must introduce a certain substance, e. g. a liver preparation or insulin, into the human body if we want to counteract respectively pernicious anaemia and diabetes, *that* men must be industrious and show self-control in order to obtain the necessaries of life and attain technical progress, and *that* men must not harm their fellow men. Ultimately, when human knowledge is viewed from all angles, "when all is said and beard", all sciences are, then, *experimental evaluating sciences*, from mathematics, physics, and chemistry to ethics and jurisprudence.

But if it is to be possible to give, in a deeper sense, equally good grounds for ethics and jurisprudence as for mathematics and physics, it is an essential condition that ethics and jurisprudence should confine themselves to assertions which are equally incontestable, i. e. such as through the experimental experience of thousands of years must by all normal sensible people be regarded as just as indispensable to human life as the axiom of the straight line and the other axioms. The all-embracing emotionally accentuated maxims about "happiness" and "duty" of earlier ethics are not such limited but indispensable principles. Such, on the other hand, are the more modest, sober rules which I have emphasised in the foregoing part: (1) That man's health and skill at his occupation should be promoted through the development of his character, and (2) that men should not harm each other. These limited ethical principles, for which we can give grounds precisely because of their extremely limited nature, will for convenience be called principles 1 and 2 in what follows.

The object aimed at in principle 1, good health and skill in occupation, is indeed the object for which all medical science is working, with the approval of all normal, sensible people. Individual ethics, which may develop into a new science, if based in future on sober experience and objective experimental methods, will gain the same approval. In all ages and among all peoples the human community has, by means of all laws, endeavoured to realise the limited aims of principle 2, likewise with the approval of all sensible people. Among the members of the human society, in the many different communities down through the ages, there has often been disagreement concerning legislation, partly when laws attempted to solve problems beyond the limited aims of principle 2, and partly when the question at issue was the proper *means* of applying the principle. But as regards principle 2 itself, the fundamental law of all

communities, Thou shalt not harm they neighbour, without which no community can survive, without the general observance of which mankind will perish or sink to the level of a beast of prey, general agreement has gradually been reached by the development of human society through thousands of years. Of this agreement all penal laws and compensation laws from the earliest to the most recent times, as I have already pointed out, furnish one tremendous proof. In modern civilised communities the enforcement of the law in all its forms: punishment, compensation, injunction, is directed against the so-called illegal acts. But among the several different elements included in the term "illegal act", the central one, the chief element, is a human action which is harmful to another human being.

After this it will presumably be clear why it has not been possible to give any validation of all former ethics, whether ethics of value or ethics of duty. The reason is twofold. Inquirers have omitted to examine what scientific proof or scientific foundation is, and what, in the last resort, is the foundation of science itself; and they have forgotten to cut their coat according to their cloth in that they have set as the aim of ethics tasks for which no proofs at all can be given. If there are to be any grounds for ethics, it must soberly and realistically confine itself to such tasks as, by their strictly limited character, can be proved as surely as all other intellectual activity worthy of the name of science, and like all other cultural values indispensable to man. Through a chain of proofs science is carried back by the "familiarity" process to some few last links which, themselves incapable of proof by this common process, can only be maintained and validated because they have proved indispensable to the existence and progress of mankind. Similarly, ethics and jurisprudence must ultimately be carried back and limited to a few last links, a few fundamental principles, which are just as incontestable for mankind as the final fundamental principles of science, because like these they also are founded on, can only be validated by their indispensability to the existence and progress of mankind.

But in these final fundamental principles we cannot appeal to such *doubtful* and *vague* concepts as *happiness* and *duty*; hence all previous ethics, both utilitarianism, hedonism, and the ethics of duty, must, if only for that reason, be discarded as unscientific.

The ethics of duty has in modern times more and more been discarded. Its best and most remarkable form, Kant's a priori duty, has, as already pointed out, proved impracticable, being purely formal and logical, i. e. non-substantial. And if it becomes substantial it will end by being an

ethics of value. It will then suffice to consider the latter. The ethics of value which in recent times has gained the greatest adherence is utilitarianism. Scientifically, however, it will run aground already at the start, for no reasons can be given for its fundamental principle, that the greatest possible happiness or pleasure for the greatest possible number of people, is the ethical aim. The terms "happiness" and "pleasure" are difficult terms. The word happiness means a particularly intense feeling of pleasure, moments when the soul rises to its greatest heights of joy in life. But such moments are relatively very rare; and often they are only felt with special intensity against the background of man's sufferings and struggles, and further, just because they are so rare. And as a matter of fact, the ethics of value includes under the concept of pleasure or happiness in a wider sense the less intense feelings of pleasure. But then, among various other difficulties there also arises the problem of the quality of the pleasurable feelings: whether we can distinguish between so-called "higher" and "lower" feelings of pleasure. This fundamental problem has not been solved by any ethics of value, any utilitarianism, or hedonism. If utilitarians assert that individual men must work for the happiness or pleasure of the greatest possible

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The previous main ethical schools give expression to different views of life. Adherents of the ethics of value, from the time of Socrates and Epicurus to utilitarianism, represented it as the task of ethics to work for as much happiness or pleasure as possible for the individual and mankind as a whole. Followers of the ethics of duty, from the Stoics of antiquity to Kant, instinctively felt that the experiences of life were not expressed in this seeking after happiness or pleasure, but much more in a struggle against instincts and passion that threaten human life at its roots, and that these forces destructive of life could only be kept down by the individual's voluntary submission to absolute commandments, duties.

There is an interesting parallel between the two opposed ethical schools of antiquity, the Epicureans and the Stoics, and the two opposite schools in modern ethics, ethics of value, especially utilitarianism, and ethics of duty. The Epicureans and Utilitarians see the ethical aim in the greatest possible pleasure and the leat possible pain for men. The Stoics and the adherents of the ethics of duty both see a high aim of human life in rising above its pleasure and pain by submitting one's whole life to a higher world order, the commandments of which come to us in the form of what we call duties, i. e. norms for our inner life and for our conduct towards our fellow beings. The motive is somewhat different, the Stoics apparently holding the view that a submission of pleasure and pain to a higher world order during the whole course of life will afford the most lasting satisfaction, while the ethics of duty regards the concept of duty, the universal moral law, as an a priori generally valid law, raised above the world of the senses. But the view of life is the same.

number of people it is at any rate necessary, before this task be undertaken, to be clear as to what kinds of pleasurable feelings it is desirable to spread. (On these and other difficulties incident to utilitarianism and to hedonism and the ethics of duty see above pp. 48 seq.). But, further, no reasons can be given at all for the assertion that one ought to work for the happiness or pleasure of all others in general, that is to say, irrespective of their quality or their behaviour towards oneself or others, and irrespective or their natural association or lack of association with oneself. It is extremely doubtful whether such indiscriminate benefiting of everybody would actually be for the prosperity and advancement of mankind. Such doing good to all kinds of people would make all human qualities in life disappear; there would be no encouragement or reward for the good and no just suffering for the wicked. All would be wrapped in gloom. Hence the utilitarian fundamental principle is not indispensable to mankind.

On the other hand, as I have shown above, the two principles which I have called principles 1 and 2 are indispensable to human life. These two principles are the fundamental laws of character and society, which both, besides science, belong to the sustaining cultural values. These fundamental laws are just as indispensable to human life as the last axioms of science. If these fundamental laws fail, all human self-control and all human social life will break down; human life will revert to the jungle, to the level of the beast of prey. The axioms of science and the fundamental laws of character and community against the brute element in man have been the most powerful levers in the whole existence and development of mankind towards a higher stage of life.

The concept of duty should not be extended beyond its natural limits. It is naturally directed against a particular action, in a particular case, namely an action by which a person harms other persons. It is natural to say that it is our duty not to harm our fellow beings. But it is not natural to talk about our duty to create feelings of pleasure in all men; because it is impossible to give any reasons for such a duty.

Nor can a benevolent attitude towards one's fellow beings at the outset, manifesting itself in helpful actions, be maintained objectively on such a notion of duty, but only on the ground, that of course it makes life and all its circumstances easier if men support and help each other in emergencies. This also explains that within certain limited fields legislation seeks to promote such mutual aid and support—in an ever increasing degree in present day communities, (e. g. by the general

national insurance against sickness, old age, and invalidism, imposed by law). But this mutual aid also cannot be carried through either in the legal or the ethical field by disregarding every human quality. The quality of a human being is proportional to the agreement or disagreement of his individual character and social attitude with principles 1 and 2.

Ethics has hitherto broken down in its task. It has set as its first aim happiness or pleasure and its diffusion among men, with the result that it has neither been possible to agree about happiness itself as the greatest pleasure or the greatest number of pleasurable feelings (the problem of the quantity of the feelings of pleasure), or about the diffusion of the pleasurable feelings (the problem of the greatest possible number), or about the relation of these two concepts of quantity to each other. Since agreement about these problems cannot be attained, ethics has come to an impasse, and has not been able to give reasons for anything whatever. Confronted by this hopelessness and confusion it is necessary first to established a fixed scientific method and then to distinguish sharply and clearly between various limited tasks. Above I have attemped to do so. In the foregoing it has presumably been proved *that* the method must be the one indicated above which I have called the experimental evaluating method, and *that* there are two limited tasks which must in the first place be solved, the tasks indicated above by principles 1 and 2. Only then will the solution of the problem concerning individual satisfaction or happiness come as the third task. But for the individual to be able to work in peace and endeavour to gain satisfaction and happiness in his own way, life itself must first be sustained, the necessary vital needs must be satisfied and the dangers to life averted, whether coming from nature, from other people, or from ourselves. Before we can create happiness or pleasure we must first secure the essentials of human satisfaction and happiness, those conditions without which life cannot be lived at all. As I have shown above, this can only be done by insisting on the two fundamental principles which I have called the two first ethical fundamental laws. These may be briefly expressed thus: that men should not by their behaviour harm themselves or others; including hereunder, as shown above, that to a certain extent they aid each other against the common dangers and evils of life. Paraphrasing an old saying, we may put it thus: first seek to carry through these principles, and all the other things shall be given to you.

That all former ethics, both the ethics of value and the ethics of duty, have lost themselves in vague and extravagant demands and not seen the

limited but vital task comprehended in the two above-mentioned fundamental laws, is due, so far as I can see, to two facts. Besides failing to sift the problem of knowledge, ethics has neglected to utilise the vast material of practical experience available in two specialised sciences, law and medicine, and altogether avoided close association with these. In my opinion the future of ethics depends on its resolute abandonment of the abstract heights of former ethics and its descent to the realms of practical experience and close co-operation with these two empirical sciences. The whole tedious theoretical debate on the vague and doubtful fundamental concepts of the ethics of value and the ethics of duty and the huge quantities of philosophical literature to which this dicsussion has given rise bear no reasonable proportion to the efforts expended on it and has on the whole been rather barren. On the other hand, there are extensive, fruitful fields of profound human experience in these two specialised sciences in the limited fields covered by principles 1 and 2. In field 2 the law has for thousands of years, from the first origins of the human community, incessantly and by many ingenious means endeavoured to prevent men from harming each other, and tried to induce them to unite in a certain co-operation against the dangers of nature. In field 1 medicine has through long ages gained extensive experience. The public debate on the moral ideas has as a rule been without value, precisely because it has neglected to gte into close contact with this experience. As is well known, traditional morality lays down certain rules for the personal conduct of the individual, but has never given any real reason for them. This has avenged itself, for it has given rise to fierce attacks from negativistic schools which, because they could not find any foundation for the tradional moral rules, proclaimed the free unfolding of life and asserted that to yield readily to instinct and impulse was healthy, while inhibition of the impulses by the traditional moral rules led to morbid conditions. This state of affairs has influenced wide circles, even among the humbler classes.

If we want to counteract these widespread free tendencies, reasons must be given. In our day declamations about virtue will not suffice. A definite validation must be given of every ethical rule for personal conduct. But precisely in this field the experience of medical science goes hand in hand with the common experience of mankind through thousands of years. In my opinion a closer co-operation should be arranged in future between psychology, psychiatry, other branches of medical science and a practical psychological and economic doctrine of vocation or doctrine of aptitude. Only through the collective and com-

bined experience of such sciences can we arrive at certain general ideas as to the kind of personal conduct which will harm the individual. In the following chapters I shall try to lay down certain rules.

Only when the two fundamental conditions mentioned above can be secured, will ethics be able to turn to the study of the difficult third task: whether it be possible to suggest or indicate roads that will lead to human happiness or satisfaction for the individual. Only if this be possible will the individual be able to work for the happiness or satisfaction of others; and next it must be ascertained to what extent and for what kind of people it will be natural for the individual to contribute towards this object.

CHAPTER 11

SUMMARY.

FOUNDATION AND MUTUAL CRITICISM OF THE FACTORS OF COGNITION. SYSTEM OF THE SCIENCES.

I.

The Concepts "a priori" and "subjective" in Relation to the Factors of Cognition.

The factors of cognition, that is to say, our sense observations and our observations of our self, our apprehension of difference and likeness and the law-bound interrelation between these, hereunder time and space, cannot, taken separately, be the subject of any cognitive criticism. We cannot get outside ourselves, that is to say, outside these cognitive faculties of ours. Epistemology can only critically contrast them with each other; but as I have shown in the foregoing chapters, in so doing we must not use a single factor of cognition to criticise all the others, as has hitherto been done in epistemology, but on the contrary we must use them *all* (1—6) for the mutual criticism of them all, and thus apply the necessary limiting corrective to each of them and create the greatest possible harmony between them.

The basic concept of cognition: reality, and the logical mathematical axioms have, as I have presumably shown above, originated from our faculty of finding likeness and difference, our feelings of pleasure and pain, and the law-bound interrelation between these and between our sense observations. Thus reality concept 1, which is valid in daily life and the sciences, comes into existence. This is the world of which we have *experience* through our factors of cognition in their habitual co-operation. Reality concept 2, *the world in itself*, things in themselves, arises from the fact that our distinguishing faculty is able self-critically to distinguish between the picture of the world given us by our faculties of

cognition—sensations in relations—and this world, the universe, as it is at its core. But since this reality concept, reality 2, has been created by our own faculty of cognition, by distinguishing and comparing, and we can never know whether this and other faculties of cognition reproduce that reality it remains the great unknown *X* which we can neglect in our ordinary scientific enquiries both in natural science and the social sciences. Notably this *X* should not be confused with the reality which natural science may at any given time consider the correct picture of the core of the world, e. g. with the idea of it presented by the atomic theory prevalent in our time. Thus it cannot be proved that the atomic processes are the world in itself, reality 2. Even if one of our factors of cognition—the law-bound interrelation—may fail in these processes, we must apprehend them by means of the other factors of cognition, especially likeness and difference; but we do not know, either, whether this factor gives us a correct knowledge of the world in itself.

The word a priori can therefore, in my opinion, only have a very limited application in the future; it is, indeed, used in very different senses. *Only after* we have, by means of our fundamental factors of cognition, our distinguishing and comparing, feeling of pleasure and pain, our conception of law-bound interrelation and thus also of time and space, formed our *reality concept*, and hence drawn the *boundary between the external and internal worlds*, can we *begin to examine* whether our cognition or conception of the world agrees with reality or goes beyond this and has been created by a special tendency of the human spirit.

By reality we mean, in the first place the sense-observations and self-observations in the relations which we have *hitherto experienced*, that is to say, in the last resort our previous feeling-ahead or willing ahead or our experimenting and its results. This knowledge of the world or feeling ahead which we have so far had we call experience or empirical knowledge.

A. The word "a priori" may consequently be understood in the sense of *an assumption anticipating future experience*. Strictly speaking, we can for instance, merely say that according to our previous experience, our previously experienced feeling-ahead or experimenting, the metal *X* has always melted at *Y* degrees.

A few sciences such as history and geology only make statements about the experience hitherto gained, that is, sense observations in the connection of the relations. But most sciences, and especially most

natural sciences, always consider the past and the future experience en bloc, trusting to the constancy of nature at all times. Hence natural science gives the so-called laws of nature a quite general form. The laws of the motion of bodies as given by Galileo, Kepler and Newton, the laws of the occurence of the electric and magnetic phenomena, as formulated by Coulomb, Oersted, Ampère and others have been given such a form that they are valid both for the past and for the future, without ever distinguishing between them. When for instance Newton in his laws of motion establishes amongst other things the principle of inertia, that is to say, the law that any body continues in its state of rest or of uniform motion in a straight line except in so far as it is compelled by the intervention of external forces to change that state, or when Coulomb for instance lays down the law that the force with which two quantities of electricity repel or attract each other is proportional to the product of the amounts of electricity and inversely proportional to the square of the distance, these laws of nature establish definite law-bound interrelations with general validity for all time, the past as well as the future. And yet these laws of nature could only be established on the basis of previous experience; and strictly, therefore, we have no guarantee that the phenomena will occur according to the same laws in the future. By our apprehension of likeness and difference we likewise, group certain phenomena in constant types (e. g. plants, animals, elements in natural science, groups of words and combinations of words in philology), of course also on the basis of experience previously gained, likenesses and differences hitherto observed, but also with a general validity based on the assumption of the constancy of these likenesses and differences in the future.

The laws of nature, then, are a priori in the sense that they anticipate future interrelations on the basis of general interrelations hitherto experienced. There is no reason, however, to exaggerate the importance of this, as Kant especially did. From the general character of mathematics and pure physics, of the laws of nature, and from their a priori quality in this sense, he inferred that they expressed subjective forms in which our minds must necessarily apprehend all experience, that they were a priori in this sense too, which is incapable of proof. For mathematics and physics it will suffice—and will be scientifically most correct—to say that the *general* character of the mathematical axioms and the laws of nature means (1) that for *all* experiences we have so far gained and are gaining at this moment these axioms and laws of nature have been found and are still found to accord with reality. This *generality*,

or *general* character, cannot be disputed. Why should generality mean anything but general validity for a particular content of consciousness when this, in addition, is the *whole* content of our consciousness up to this very second? But further, mathematics and natural science can say that (2) this generality means the *provisional* assumption, on the basis of all the experiences so far gained, as a temporary measure, that we can apply the mathematical propositions and the laws of nature to our own observations in this and the next second and in the time that follows, until fresh experiences appear and contradict the axioms of mathematics and the laws of natural science In atomic physics it has been shown that we do not a priori place so much reliance on the laws of nature, on the causality, the law-boundness they express, but that we have in certain fields recognised the necessity—at any rate for the present—of giving up the law-boundness and contenting ourselves with statistical frequency in the occurence of the phenomena. Even within this limited sense of the term a priori—equivalent to anticipation of events—mathematics and natural science may, then, assert that for practical reasons they will for the present, now and in future seconds, hours, days etc., follow the mathematical axioms and the laws of nature which all experiences up to this moment have constantly confirmed. Thus, in the moments to come, we apply, merely as a working hypothesis, the law of causality itself, on which the laws of nature are based, or rather the proposition that a change at the present moment can be traced back to other changes in previous moments in law-bound interrelation. The present moment cannot be separated from the past or the future moment; reality forms one great texture, the dissection of which into isolated moments is an abstraction. But at any rate natural science, if it makes the above-mentioned cautious reservation with regard to the future, can with full justice maintain that its laws, its law-bound causal connections, are a result of experience, are empirical. And in spite of the fact that for working purposes science continues the line from the past moments to the present and the future moment, we can with equal justice maintain that this line or law-boundness comes from without, from the external world and stamps itself on our mind, as we can maintain the reverse, that our mind, by its form, sets the stamp of law-boundness on the phenomena of the external world.

B. Hence, the term *a priori*, in the sense of a *subjective form of the mind*, can only be used where, in our mental life, we meet with a faculty of forming ideas which is not derived from our experiences of the surrounding world. Such a faculty we encounter in the imagination, in all

the imaginative figures formed by us. In this sense the concept of *force* is also a priori, something which behind the observable surrounding world "produces" something, and as it were "behind the scenes of nature" establishes a kind of "identity" between conditions before and now. In this concept of force or cause we draw an analogical inference from our own inner psychic experiences of our own will power to conditions in the external world, while our experience of these conditions only shows us changes in law-bound interrelations, but no motive power or cause behind them.

Because our assumption of the continued future constancy of nature is derived from and based on our previous experience, this experience having always up to the present confirmed our assumption, the constancy previously observed does not justify the expectation that it will always be manifested in *particular ways*. Occasionally the laws of natural science must undergo a transformation by which a constancy previously assumed is replaced by another, broader form, more adaptable to the new experiences. This applies for instance to the laws of the conservation of energy and matter. It was previously assumed that the sum of all energy in the universe was constant, and the sum of all matter was constant. After the appearance of the relativity theory these propositions have been replaced by a proposition common to energy and matter, namely that the sum total of energy and matter in the universe is constant. This shows that the propositions based on previous experience, the laws of natural science laid down for the future, do not always hold good in future experiences. But this merely means that certain particular kinds or modes of constancy break down, but not that the constancy or regularity of nature as a whole breaks down. Perhaps we cannot in certain spheres of nature expect a law-governed, but merely a statistically frequent connection, as asserted in the most recent physics with respect to the atomic processes. If—following a Kantian line of reasoning—we would say that, should causality as a general necessary interrelation fail, it would mean that we do not *understand the phenomena*, the reply must be that we should only be able to *understand changes* in the surrounding world if we could establish that "*the cause*" as a force acting in nature *produces* the effect, and in such a way that identity is produced between the previous condition and the present change. But of such a "more profound" understanding, which is a rule popularly implied in the causal connection, we have no experience.

What we experience is only *external law-bound interrelations* or *statistically frequent* interrelations of the *changes*. But what these law-bound or regular interrelations are we do not really know. *We do not understand them.* Anything merely approximately resembling the logical connection of reason and consequence is never met with in nature in its law-bound or statistically frequent interrelations.

II.

Validation of the Factors of Cognition. Internal Criticism of the Factors of Cognition.

Now what proofs can be given for the factors of cognition, 1—6, on which all science is based?

An ancient philosopher once said. "Give me a place to stand, and I will move the earth". This is especially true of the starting point of epistemology, the point where psychology and epistemology originate and where they part company. The English empiricists, Locke, Berkeley, Hume, and all empiricists after them thought that the sensations constituted this starting-point, but did not see that they thus undermined and shattered the foundation, namely the critical intellect (the other factors of cognition), by means of which they themselves, starting from this point, built up their criticism of knowledge. To Kant, and the apriorists after him, the starting-point is the opposite, namely all the factors of cognition minus the sensations, i. e. the factors which Kant called the forms of understanding and perception—likeness and difference, causality, time and space. But he and the other apriorists failed to see that in their criticism of the intellect, from which they deduced that these forms of the intellect were subjective, they themselves used the same forms of intellect. Thus empiricism and apriorism both cut the ground from under their own feet. If these basic delusions are to be avoided it must be admitted that none of these factors of cognition, neither the sensations nor the so-called forms of intellect, can themselves be made the subject of criticism. We note the presence of these 6 factors of cognition; but *in this psychological process we already use the six factors of cognition.*

Hence none of these starting-points, neither the sensations of empiricism nor the relations of apriorism, are suited to be the ultimate basis from which the theory of knowledge and all science can be deduced. None of these is the place from which we can move all knowledge, all

science, if only for the reason that both, the sensations as well as the relations, are equally necessary for scientific knowledge. All science is based on the combined factors of cognition. The ultimate question, then, is whether proofs can be given of these factors, or whether they must be left as the last, unprovable prerequisites of all sciences.

As I have tried to show in the foregoing part, there is, in the last instance, no other foundation for the six factors of cognition and hence for all science than the human faculty which I have called our *primal faculty*, the *feeling and willing ahead*, or the human *experiment* in the deepest sense of this word, with the three aspects: (1) distinguishing and comparing, (2) distinguishing between pleasure and pain, and (3) choosing a movement or condition which will preserve pleasure and avert pain. All our factors of cognition have originated from this choice and have their only foundation in it. We grope, feel, and choose our way forward to an increasingly clearer conception of differences and likenesses between sense observations and self observations, of law-governed interrelations between these in time and space. In this primordial faculty we have, so far as I can see, the only fixed place from which epistemology can be moved, from which it, and with it science, ethics, and all other cultural values, can be validated.

Every moment of our lives is determined by the primordial faculty, by our simple distinguishing between pleasure and pain, as we steer the difficult course of our lives between these rocks. We can penetrate no deeper into existence, into the grounds of all cognition and all action. The three aspects of the primordial faculty may very well for brevity be called: cognition (distinguishing and comparing), emotion (pleasure and pain), and will (choice). But the primordial faculty must be accepted as a whole.

Already in our simplest reactions to pleasure and pain, before we can preserve the former and avert the latter, we look instinctively, as shown in the foregoing part, for the *cause*, and when it occurs again we *compare* and *distinguish*, and then *choose*. Hence our pleasure and pain *urge* us, *force* us to the recognition of causality (i. e. to find something which has a lawbound interrelation with the pleasure or the pain), and to the recognition of likeness and difference. If only for that reason it is just as futile to criticise these factors of cognition as to criticise our faculty of feeling pleasure and pain. Any criticism would be a basic delusion. Already in explaining the origin of these factors of cognition from our choice between pleasure and pain we use these factors. Hence the *primordial faculty*, both *pleasure and pain, distinguishing and*

comparing between these, and *the choice* between them, through lawbound interrelation constitute *a unity* which cannot be *subjected* to *criticism or proof*, for there is nothing from which this primal faculty can again be derived. On the other hand, everything can be derived from it. So in the last instance man's knowledge is not based on his intellectual part alone, but on the whole man, man's whole combined faculty of feeling, knowing, and willing.

It is absurd to ask whether this primordial faculty, the *experimental faculty* in the deepest sense of the word, and the factors of cognition contained in it are a priori, whether they give us a subjective conception of reality, for the very concept of reality has been created by the distinguishing between human experiences due to this primal faculty; what the inner reality is we do not know.

As pointed out above one must be aware of that even in the explanation and validation of the 6 factors of cognition through the primordial faculty, the feeling and willing ahead,—the experimental satisfaction of the needs of humanity—we use these very factors, distinguishing, comparing and the observation of lawbound interrelations. If we, therefore, will avoid the basic delusion, we must realise (1) that these factors cannot be proved to be subjective and that, therefore, it is possible that they are telling us the truth, but on he other hand (2) a proof or validation of these factors in the strict scientific sense—a conclusion drawn from incontestable premises—cannot be given. But as all scientific premises and all conclusions, *in the last instance*, are founded on these *very* factors, no scientific premises or conclusions can really be proved. At the bottom, all science, mathematics, natural science, etc. and the factors of cognition upon whom they are built, can be led back to the feeling or willing ahead i. e. the self-preservation of mankind. In the deepest sense no other proof or validation of these factors and through them all science can be given except this: we can for our self-preservation do nothing else than use these factors. Alterum non datur. We have no choice. The experiment for the self-preservation of mankind is the sole basis of all science.

It is necessary to build up a new theory of knowledge, for the previous theories, both the empirical and the a priori school, have themselves, by the basic delusions to which they are subject, destroyed all the results at which they have arrived, so that actually we have not advanced a step. We must begin all over again.

All future criticism of knowledge must in the first place be *internal*. The only thing of which a criticism of knowledge can form any judgment, the only thing it can establish, is that, when these factors of cognition are to co-operate, each of them must, if we are to form a true total picture of reality, in their own *field of application* be subjected to certain correctives or limitations, arrived at by their reciprocal critical elucidation of each other.

In this internal criticism, those general principles must be applied which I have briefly indicated above on p. 145. We must therefore in the first place abandon that *single-criterion point of view* of reality, the sense observations, which was the fatal starting-point of all previous theories of knowledge, of their false distinction between matter, which comes from without, and subjective forms of the apprehension of matter. Further we must not in the theory of knowledge employ a single faculty of cognition or factor of cognition which we ourselves consider subjective and unsuited to apprehend reality.

The internal correctives or limitation in the application of the individual factors of cognition may then, according to the foregoing investigation, be briefly summed up in the following main points:

1. *Certain sense observations corrected by means of other sense observations and our apprehension of differences and likenesses, law-bound interrelations,* including *time and space,* in short, by means of all the factors of cognition (in the following I use this short term: all the factors of cognition, instead of enumerating them all, as above).

While, as I have shown in the foregoing, criticism of the other factors of cognition, the relations, by means of the sense observations, round which epistemology, both empirical and a priori, has hitherto revolved, has proved a failure, certain sensations may be criticised by means of other sensations and by means of the relations.

The sensations as a whole cannot be analysed, cannot be recognised as subjective in relation to the external world or reality. But some few groups of sensations may be corrected.

There is a contrast between the two factors which from the old days have been called *sensing* and *thinking*. Modern natural science has shown that our thinking occasionally gives us another picture of the world than our direct sense observation. What is here understood by "thinking" is rather obscure. According to the foregoing investigation this contrast, if it is to be definite and clear, can presumably only mean that we

criticise certain *sensations* and the picture of the world they give us by means of *other sensations* and *a series of inferences* from *likenesses* and *differences* and *law-bound interrelations*. Thus our direct sense observation shows us that the sun revolves round the earth; and the Ptolemaic picture of the world was based on this belief. But by means of an ingenious series of inferences, acts of distinguishing and comparing, and law-bound interrelations between a number of observations, Copernicus proved that another picture of the world, in which the earth moves round the sun, must be more correct. And the molecular and atomic theory of modern natural science has come into existence in the same way, giving also quite another picture than revealed to us by immediate sense observation. An ordinary man, who sees for instance a chair before him, will have a difficulty in understanding that actually the chair has no colour, that the colours are inherent in us, but that certain effects emanate from the chair, oscillations which are conceived as colour by the eye; further that the chair, deprived of colour and having only size and form, actually consists of milliards of molecules; that these again consist of still more milliards of atoms and even these fabulously small parts are again composed of still smaller parts, electrons and several others; that there are relatively vast distances between them, and that in conjunction they constitute an elaborate system which may in several respects recall the mighty sun and planetary system to which our earth belongs.

Owing to our above-mentioned thinking in differences and likenesses and law-bound interrelations, a single group of sensations—colour, sound, taste, and the like—is, then, regarded as subjective, the so-called subjective sensible qualities. For the sake of clarity it would, however, be better if we did not in this connection use the terms objective and subjective, but the words *adequate* and *inadequate*. Our sensations of colour and sound, according to modern natural science, especially the molecular and atomic theory, are derived from real phenomena in the surrounding world; homogeneous stimuli from the surrounding world produce homogeneous sensations; but actually natural science alleges that our sensations of colour and sound are not adequate reproductions of the oscillations in the universe which we call light and sound.

Our allegation that the Copernican picture of the world and that of the modern molecular and atomic theory are both more correct, more true, more in accordance with reality than the Ptolemaic picture and the one shown to us by direct sense observation, is due to the fact that these

pictures give the best *correlation* between all previous sense observations in their likenesses and differences and law-bound interrelations. Every time we make fresh sense observations, or discover new likenesses and differences or new law-governed connections, we must try to correlate these new experiences with the whole vast system of the multiple experiences hitherto gained by science. But if the new experience cannot be correlated to this system, to our total view of the world, we may to a greater or less extent have to revise the latter. Correlation must in some way or other be brought about, either by adjusting the new experience to the system after closer scrutiny, or if this is impossible, by altering or abandoning the system.

2. *The "Limitation" of Space and Time by all the Factors of Cognition.*

By our apprehension of difference and likeness and of the law-boundness of our observations we explain the genesis of space and time, as far as space is concerned as a correlation or co-ordination of various sensations, especially sensations of sight, motion, and touch; and we establish the mutual limitation of space and time, the limitation of space to material phenomena, psychic phenomena being excluded, the applicability of time both to material and psychic phenomena, but as regards the former, its limitation to substance, to the motion of parts of substances.

3. *The Current Conception of Law-bound Interrelations critically examined by means of all the Factors of Cognition.*

Through our conception of difference, likeness, and law-boundness between our sense observations and self-observations the concepts of *force* and *cause* in the ordinary sense are criticised and set apart as not consistent with reality, with observations in law-bound interrelations. And statistically frequent correlation is separated from law-bound interrelation.

With the corrective indicated in the foregoing part we can use the expressions causal relation, causes and effects, causal interpretation. In what follows we shall therefore often use the shorter expression "causal relation" and the other terms compounded with "cause" alternately with the expression law-bound interrelation, with the implication that causal relation everywhere merely means law-boundness. I likewise use the expression causes and effects as a variant of the expression "law-bound interrelation".

4. *Our Conception of Differences and Likenesses subjected to Correction by all the Factors of Cognition.*

Even to our conception of differences and likenesses we may apply certain correctives by means of the other factors of cognition. Thus we may criticise our distinguishing and comparing of certain sensations by a still finer distinguishing and comparing due to other sensations. And we may occasionally, in our causal explanation, discover as the cause of certain visible changes phenomena which are so minute that our sight cannot distinguish them. By means of the microscope we discover differences and likenesses which we cannot detect with the naked eye. And defying the power of all microscopes, even the electron microscope, there are most of the molecules and atoms and the last elements of the latter, the protons and electrons.

But further it must be pointed out that our distinguishing and comparing can be applied not only to the phenomena which our sense observations show us but also to the ideas created by our imagination. There is a danger here, however. Only that distinguishing and comparing which keeps to the objects of experience is scientifically valuable. All formalistic logic, that is, the distinguishing and comparing which on the basis of constructed concepts, remote from all reality, erect artificial systems of thought, from scholasticism in the Middle Ages to the speculative philosophical systems, from Spinoza to Hegel, escapes the control of experience. Further it must be pointed out that through sense observations and self-observations in law-bound interrelations we criticise and eliminate inessential (irrelevant) differences and likenesses as scientifically valueless.

Finally it must be emphasised that our distinguishing faculty sometimes tends *to make distinctions too sharp*, to eliminate some phenomena from the vital connection from which they cannot actually be separated. The excessively sharp distinction of classical epistemology between sensations and relations is an example of this. Another still graver example is the too sharp distinction pointed out in the foregoing part between cognition (sensations, ideas in relation to each other) on the one hand, and emotion and will on the other.

What happens epistemologically when these distinctions are admitted to be too sharp is the same that happens when a group of sensations are recognised as inadequate; other factors of cognition, here especially factor 2, our conception of law-governed causal relations are included and critically elucidate factor 1, acting as a limiting corrective to this. It thus turns

out, as I have tried to prove above, that there is a deep causal relation between all acts of cognition and the phenomena of emotion and will.

It will be seen from these and similar examples that our picture of reality is amplified by the co-operation and mutually limiting criticism of the factors of cognition. It is of the greatest interest to natural science and to science altogether that epistemology can give grounds for and throw light on this mutual self-criticism of the factors of cognition. Such an investigation, especially the critical elucidation of the concepts of force and cause, will, as we have seen, apply essential correctives to our conception of time and space as well as our apprehension of causality.

As will be seen from the above-mentioned main points, the method of epistemology must, so far as I can see, be an explanation and thus a correction and verification of *the individual factor of cognition* by means of *all the factors of cognition*, that is to say, quite the reverse of the method hitherto practised in epistemology: namely explanation and criticism of all the factors of cognition by means of a *single factor* (the sensations). The one-sideness of this method is exemplified with special clarity by the distinction between adequate and inadequate sensations mentioned above under point 1.

We owe part of point 1, namely the idea of the inadequate sensations, to earlier philosophy and natural science (Democritus, Galileo, Descartes, Hobbes); but only in modern natural science, the molecular and atomic theory, has a thorough motivation of it been given. Critical epistemology, on the other hand, especially as represented by Berkeley, Hume, and their consistent successors, could not, on the basis of their criterion of reality, the sensations, maintain a distinction between the sensations by which some gave and others did not give true knowledge of the surrounding world. As shown in the foregoing part, all previous epistemology must, on the basis of this one-sided criterion of reality, consistently reject as a fiction the assumption of a surrounding world, and thus also every distinction between the sensations, according to which one group of these should give a truer knowledge of this surrounding world than the others. Epistemologically, therefore, the distinction between the adequate and the inadequate sensations has hitherto had no solid foundation, lacking all support from the theory of knowledge according to its previous method. Only when we realise that this method is erroneous and that we shall have to change to the method founded on the above investigation, according to which each individual factor of cognition is explained and critically elucidated, not by a single other factor but by all the

other factors of cognition in conjunction, can the distinction between adequate and inadequate sensations, as already shown, be epistemologically validated.

Hence the proposed epistemological method is *internal* and *relative*, only giving a criticism of the factors of cognition in relation to each other, not an *absolute* criticism of the factors themselves; by using all the factors of cognition for reciprocal criticism, we give no criticism of the *application* of the factors of cognition, but, as is shown in the foregoing part, only a criticism of their *mode of application* in *co-operation* with each other. Such a criticism with the consequent limitations and correctives is necessary to secure the greatest possible correlation, co-operation, between them. As I have constantly pointed out, in this mutually limiting process we use throughout the very same factors of cognition, especially difference and likeness and law-boundness of the observations; and whenever we have in the foregoing, given an *explanation* of the *genesis* of the ideas, e. g. of the origin of the concept of reality, of the origin of all the factors of cognition, we have operated throughout with difference and likeness and law-governed interrelation of the observations.

In the last resort this reciprocal self-criticism of the factors of cognition, like the factors of cognition themselves, can only be grounded in the basic faculty, in our feeling of satisfaction and avoidance of pain through the application of the same method, by which we have come to use these factors, through experimenting or feeling ahead. Metaphorically we may say that our factors of cognition are like various feelers which we stretch out into existence to avoid danger or pain and to satisfy our needs. In so doing we feel our way by means of sensations, space and time, difference and likeness, law-boundness. When we have by these means arrived at our *reality concept* and have thus gained a starting-point for the estimation of the individual factors of cognition we discover, by using these in co-operation, that we cannot quite rely on a single isolated factor but that they must be corrected by means of each other.

But the basic faculty and the correlation of all our experiences founded upon it are the uniform feelings of satisfaction of the whole of mankind at the application of our faculties of cognition, factors 1—6, through the thousands of years mankind has existed. These feelings, therefore, can *only* give reasons for *the factors of cognition, the reality concept, the logical axioms* and the *experimental method* based on these; whereas these feelings of satisfaction throughout the life of mankind cannot give grounds for *a single particular opinion, judgment, theory or hypothesis.*

Strong personal feelings may be associated with a particular opinion, judgment, or theory. But there are different strata in human emotional life, deeper and more superficial ones. To the deepest stratum belong men's feelings of satisfaction in using the factors of cognition, the reality concept and the logical axiom, which are both based on the bedrock of these factors, and the experimental method, which has led to these. These feelings have a much firmer foundation both in breadth and depth than any emotion felt at an opinion, for they dominate *all* mankind through *all* the millennia. Emotions associated with particular concrete opinions, even views of the world such as the Ptolemaic, judgments, or theories, belong to the superficial stratum: they may dominate a large *part*, or perhaps even the *whole* of mankind for *a certain time;* but in spite of all they are still merely like the grass which grows in the field today but tomorrow or after a long time is thrown into the fire. Opinions come and go, but the factors of cognition survive, for it is by their means that all opinions are built up and again dissolve and perish; and they are the rock on which the reality concept and the logico-mathematical axioms rest. The reality concept, the distinction between the internal and the external world, cannot then be disputed by any view, for then all thinking would at the same time be disputed; and all opinions, views, and judgments would fall away. But the moment this universal human thinking, and thus the reality concept and the logical axioms are accepted, all talk of validating particular opinions, theories, judgments, by their beneficial effects on the feelings of mankind will cease; henceforward there will only be one way of giving reasons for one's opinion, namely by showing its agreement with reality, logic, and the scientific methods based thereon. We are here concerned with an absolute truth in the only sense in which human beings can use the word absolute in connection with truth. That my idea or conception does in fact agree with reality, and that a is equivalent to c when a is equivalent to b and b is equivalent to c are absolute truths, not as expressing the world in itself, which we do not know, but as expressing the reality, 1, which is at all accessible to human beings.

All opinions, judgments, theories must accordingly be tried and judged before the supreme court of truth, constituted by the reality concept combined with logic. And it does not matter in the least whether this trial will entail harmful effects in the sense that the view which has been condemned satisfies the feelings of large, or the largest, groups of men for a long period, or whether it has useful effects in that respect. The reality concept is the rock on which all subjective opinions, arbitrary

dogmatic schools and movements are wrecked. From this rock there is only one way out, the way shown by the logical conclusions and the experimental methods of science.

The fundamental error of reasoning committed by certain schools which came into existence at the close of the 19th and the beginning of the 20th century will now be understood. During the general weariness of the problem of knowledge, which had found no solution in the contradictory empirical and a priori schools of the 18th and 19th centuries, it occurred to them to assert that this insoluble problem could simply be evaded by the easy and practical method of deciding the truth of an opinion, a judgment, a theory or an hypothesis by its consequences. If an opinion, theory or hypothesis has *useful consequences for mankind* it will spread, will triumph, be "*true*". The truth of an opinion and a judgment, in the absolute sense, does not exist. Every opinion, judgment, or theory is a working hypothesis; its truth is determined by the results alone (the consequences, der Erfolg); it is verified by its beneficial consequences This view, maintained by pragmatists, (and partly also in the so-called economic theory of knowledge), justly met with severe criticism and disappeared after a short life of acceptance and contradiction. It is in fact easy to show in respect of these schools that there really exist absolute truths which do not require any verification, e. g. the mathematical $1 + 1 = 2$. In my opinion it is more important to point out that, as just emphasised, truth in the absolute sense, agreement with *reality*, does exist (of course· reality 1, since in all ordinary science we may disregard reality 2). All our judgments from observation, e. g this rose is red, the horse is whole-hoofed, just like the judgment $1 + 1 = 2$, are absolutely true; and it does not matter in the least whether or not they have useful consequences. They are simply *true without any reference* whatever *to the consequences*. Conversely, there are assumptions, e. g. the belief in a punishment after death, which undoubtedly have had and still have many beneficial effects, but which cannot be asserted to be scientific truths, as the above-mentioned mathematical and observational judgments.

But during the criticism of these obscure philosophical schools nobody has pointed out their fundamental fallacy, the fallacy that leads to these untenable results. According to what I have just shown, the error is presumably evident. For the sake of brevity I will let A denote mankind's *total feeling* of satisfaction, arising from the primordial faculty, in *applying* the *factors of cognition* throughout the ages, while B denotes the *factors of cognition* themselves, C the *reality concept* based on these, the mathematical and logical *axioms* likewise based on them, and altogether the experimental ascertaining and evaluating *method* in all theoretical and applied science, and D the *particular, concrete opinions, judgments, theories,* and *hypotheses*. Briefly the fallacy of the above-mentioned schools may be expressed thus: they skip lightly from D to A and thus quite simply evade B and C, that is to say, they evade *all the actual epistemological problems*. But this evasion or short-cut-philosophy has proved by its consequences that it revenges itself to evade the most profound problems of knowledge, for this superficiality led directly to the above-

mentioned untenable results and exploded these schools. They realised that it was an exceedingly troublesome and difficult task to sift to the bottom the problems of the great epistemologists Locke, Berkeley, Hume and Kant, and to seek a solution of the hitherto unsolved anatagonism between the conflicting empirical and a priori conceptions of these thinkers and their successors, and their profound, but futile, discussion of it in the 18th, 19th, and 20th centuries. It would indeed be the easiest way if, with the pragmatists, we could dispense with a thorough study of these comprehensive and contradictory investigations of our predecessors, give a wide berth to all this difficult research work, declare its problems to be insoluble, and find an easy, practical criterion of the truth of all opinions and theories, namely in their useful or harmful consequences. But the fate of this facile evasive reasoning, its rapid fall and disappearance, has shown, so clearly as to exclude any future misunderstanding, that nobody who wants to throw real light on human cognition, its faculties and its limits, can get round the thoughts of Locke, Berkeley, Hume, and Kant on the great problems of knowledge, or shirk an earnest attempt to solve the conflict between the fundamentally different views of these thinkers and their successors. The same may be said of the earlier epistemology, its empirical and a priori schools, as has been said about Roman law and the jurisprudence of the future: we must *pass through* Roman law to get *beyond* it. Similarly, in a thorough investigation of the epistemological problems we must carve our way through the empirical and a priori epistemology and the apparently insoluble conflict between them in the last three centuries, and thus try to get beyond this theory of knowledge and its various schools of thought. In other words, the whole enquiry into human knowledge, its elements and its limits, which we have pursued in the preceding part, has quite simply been dispensed with in the above-mentioned philosophy of evasion. In the above exposition I have tried to show that it is possible to find a solution of the deep conflict between these schools, and of the problem of knowledge as a whole. But the way is not the easy one from A to D, from feelings to truth, but the troublesome and difficult one from D to C, from C to B, and from B to A, that is, from opinions to reality, from reality to the fundamental factors of cognition, and from these to the deepest satisfaction of mankind.

Hence the criterion of the truth of all judgments, conceptions, and theories is not feeling, but *the reality concept, the logical and mathematical axioms*, and the methods making use of these. This criterion of truth, our reality concept and these axioms, must invariably be adhered to in all judgments, whether or not their consequences are useful, are feelings of satisfaction Only *afterwards*, when this has been established, can we ask: on what do the reality concept and the axioms depend, and how can they be validated? And the reply, as I have tried to show in the foregoing part, is: they depend on the factors of cognition. If, again, we ask: on what does our application of the factors of cognition depend, and what proofs do we give of them, then, and then only, the answer will be: it depends on the human feelings, our feeling ahead. But this does not consist in feelings of satisfaction among larger or smaller groups of men owing to their views, opinions, theories or creeds, nor even in feelings of satisfaction among the largest gorups

of men, whole nations, through long ages because of their opinions, theories, or dogmas, but solely and exclusively in *all* humanity's feeling of satisfying its needs through *all* ages by applying those *faculties* or *factors of cognition* which everybody is obliged to apply, and on which the reality concept and the logical axioms are based. In short, no opinion, judgment, theory, D, can be proved true by man's feelings of satisfaction, A; no view or opinion can escape a rigid trial at the instances C and B on its way to the supreme court of truth. This destroys every foundation for pragmatism and the consequent laymen's schools that presume to justify their more or less arbitrary views and dogmas by merely referring to their usefulness or advantage in regard to satisfying the feelings of mankind.

Finally pragmatism rests on a vague confusion of the two kinds of science, the descriptive and the applied sciences. The descriptive sciences, such as physics, chemistry, physiology and the like, and all theories and opinions that belong to these, can be based solely on the reality concept and the logical and mathematical axioms The applied sciences, such as the technical natural sciences, medicine, ethics and the like, attempt to discover measures beneficial to mankind. Only in the field of these sciences can we speak of justifying a view, namely in regard to proper procedures, by its favourable effects. But to these procedures too the applied sciences can only find their way by depending throughout on reality and the above-mentioned axioms and by applying the law-bound interrelations in the real world, through the experimental methods of science.

If the concept of reality be understood in the sense of all the sense observations and self-observations in differences and likenesses and causal relations in time and space, the concepts of experience and reality will *at any given* time coinside. Bue it may happen, of course, that deeper and more comprehensive experiences, say in 50 years, will give us another picture of reality than the present reality concept, our present total experience can give us. Our picture of the world has changed. As late as his period *Tycho Brahe* found that all our experience accorded best with the Ptolemaic picture of the world. Hence it is correct to say: our experience of reality, the modern or the ancient experience of reality. We may also say: the picture of reality of our age or another age, based on the total experience of any given age.

In this way we then distinguish between reality as *object* and our *experience* of this *object*.

What we call *knowledge* has indeed as a rule reality as its object; but knowledge may also be concerned with imaginary figures, e. g. the Greek mythology. Hence, as pointed out already, we must distinguish between *truth* and *reality*. The linguistic expression of our knowledge is usually

a judgment or a statement, e. g. the rose is white, the snow is melting. A judgment is true or false according as it agrees or fails to agree with its object. If the object is real, the judgment is both true and real; if the object is, say Hephaistos, the statement that Hephaistos is the god of metal-working is true but not real.

In the concept of reality a distinction is drawn between *external* and *internal reality*. External reality is the surrounding world, all its things and changes. Internal reality consits of all our other experiences, hence of our own inner states, different from the external world, our emotions, moods, decisions, imaginings. That I have a feeling or a mood at the present moment, for instance of pleasure at a memory, is just as real a psychic experience as my experience that the sun is setting at the present moment. My knowledge, my conscious idea of, a faun or a centaur is real as a psychic experience; it is real that I have at this moment an idea of a centaur; but this idea is not real viewed in reference to the external world, since, so far, such a creature has not been observed in the surrounding world. My knowledge, my judgment of this creature, namely that it has the body of a horse and the head of a man, is thus a judgment that is true and real as a psychic fact, but unreal in reference to the external world. But it may also be said *in quite general terms* that our idea of a centaur is unreal according to its *content*, for according to its content it is concerned with an object in the external world, namely an animal-man.

This difference between truth and reality and between the two kinds of reality must be kept in mind in the use of the words *objective* and *subjective*.

By the contrast between objective and subjective we usually to a great extent mean the contrast between the external world that comes and goes independently of our inner states, feelings and moods, and this inner world. Nevertheless, it would be wrong to define an objective judgment as a judgment agreeing with the external world, its things or changes, and a subjective judgment as a judgment agreeing with our inner states, feelings, and moods. For, on closer inspection, the contrast between objective—subjective does not refer at all to the difference between the

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The contrast between "external" and "internal" is also sometimes taken to mean that "internal" is all that takes place inside the human body, while "external" is all the surrounding world minus that body In this book the words are not used in that sense. Here "internal" and "external" merely denote the contrast between *psychic* and *material*. Hence the human body, too, belongs to the external material world.

external and the internal world, but to the difference between an observation, whether of an external or an inner phenomenon, that is independent of our desires and will, and an observation which is more or less coloured by our feeling and will. A psychological self-observation, just as well as an observation of the external world, may be either objectively or subjectively coloured. Not a few people do not know themselves; they are unable to give to themselves or others an objectively correct idea of their own emotional or volitional life, but are subject to self-deception. Some people's ideas of the external and internal world are subjectively coloured by their religious attitude, other people's is just as subjectively coloured by their polemical anti-religious attitude. But if the concepts "subjective" and "objective" may thus equally refer to the inner and the outer reality, the result will be that the concepts "subjective" and "objective" actually coincide with the concepts "false" and "true". My judgment is objective or true when it accords with its object—whether it be an external thing or a mood, an imaginary figure—and subjective and false when it does not accord with the object. But the terms subjective and objective are especially valuable by calling attention to the source of error in our knowledge of external and internal objects which resides in the fact that people often mix their desires and their will with their observation of reality, with self-observation as well as with their observation of external objects.

A sharp distinction must be drawn between *subjective* in the *ordinary sense*, that is, an individual source of error in the feelings and moods of the *individual* person, and subjective in the *special epistemological* sense, that is, a misconception of which *the whole of mankind* is guilty, due to *the faculties of cognition of the human intellect itself*. This special sense is implied in the term subjective when we say, for instance, that our sensible qualities, colour, sound, and the like, are subjective. As previously pointed out, it would be more correct here to use the term *inadequate* and its contrary, *adequate*, instead of the terms subjective and objective; see above.

Since in all sciences most judgments are concerned with real objects and not with imaginary figures and are, therefore, both real and true, it is natural that normally the terms truth and reality are used indiscriminately; nor can there be any objection to this if only it is realised that the concepts of truth and reality do not *always* coincide, but that certain sciences, such as psychology and the history of religion must always deal with imaginary figures, for instance the Greek mythology, and must pass judgment on them which, in reference to the outer world, are not

real. But apart from these exeptions the concept of *knowledge* and the concept of *reality* and *experience* coincide.

The mathematical judgments are true and also real in so far as they operate with notions of things from the external world, such as space, its three dimensions, numbers, figures such as circles, triangles, etc., hence the conclusions of mathematics always accord with reality. The mathematical judgments as well as the *general* character of the laws of nature, again, can also be said to agree with reality in so far as *all* observations of the latter hitherto have agreed with these judgments.

The perfect *geometrical figures*, circles, triangles and the like accord with our experience in so far as our direct sense observation shows us such figures; but the more complex experience which the causal relations in physics and chemistry shows us, and the finer differences revealed by the microscope, cause a revision of our reality concept in that respect, see above pp. 176-80.

Our *general ideas* (both ideas of types, e. g. vertebrates, and ideas of qualities, e. g. whiteness) are experience and reproduce reality, since they alone are a collective expression of the hitherto observed likenesses and differences.

The largest molecules that can be observed through an electron microscope of course come within the range of experience and reality; but the same thing must apply to the *molecular and atomic theory* as a whole, for according to our statements above, the concept of experience and reality includes *all* our previous sense observations in likenesses and differences, causes and effects, space and time, in the greatest possible correlation to each other; and so far we have deemed it possible to obtain the greatest possible correlation in all our experiences by accepting the molecular and atomic theory. Hence this theory too comes within the range of experience and reality.

It would be *incorrect usage* therefore to say that our experience does not accord with reality because we "experience" that the surrounding world has colours, and that the sun revolves round the earth, while the fact is that the external world has no colours, and that the earth revolves round the sun. For, as already pointed out, "experience" does not consist of single, isolated direct sense observations, as for instance the above-mentioned visual observations, but of *all* our multiple different sense observations in their numerous successions of differences and likenesses, causes and effects, all closely correlated. This total picture is both our experience and reality.

Above it was pointed out that, by the general laws of nature, natural

science also anticipates the future. But at bottom all our knowledge, our experience, even though it is concerned with a past cognition, is in reality *anticipative*, since all knowledge, experience, cognition, as will presumably have been shown in the foregoing part, depends on our using the factors of cognition to feel ahead and experiment. In every single moment when, whether in action or in science, we establish a difference or likeness or a causal relation, we assume that we can and should apply these factors of cognition in future moments, hours etc.

Reality, experience, knowledge, which taken as a whole coincide, are then of the past in the sense that these concepts comprise the whole content of consciousness which, in relation to the present moment, has been acquired in the past. But at this moment anticipative work is being done all over the world, in all scientific laboratories and other working places, with all this reality, experience, knowledge, and with the factors of cognition on which it rests, on the assumption that we ought to work on the basis of this content of consciousness and these factors. The statement that the technical, applied natural sciences utilise the law-governed interrelations experimentally so as to achieve beneficial effects, is in the last instance aqually true about all sciences, both the descriptive and the applied or practical ones.

According to the foregoing epistemological investigation a series of problems fall away as pseudo-problems. In the first place, as I have presumably shown, the problem vanishes which in modern times was first seriously raised by Berkeley and has since worried thinkers and caused the appearance of a voluminous literature, from Berkeley, Hume, and Kant to recent thinkers such as Mach, Russell, Iversen and others, namely the problem whether there exists an external world. In my opinion one may just as well, as I have tried to show, dispute every other scientific concept and every other scientific distinction as the concept of the external world and the distinction between this and the inner psychic world. If we would dispute this distinction and these two concepts, we must go deeper still and dispute all human thinking, even the thinking that disputes the existence of the external world. Scepticism cancels itself.

Then the problem whether the world is wholly material or wholly psychic will also fall away, together with the interminable discussions on this question between materialistic and spiritualistic schools, and the numerous hopeless attempts which still give rise to such floods of

literature purporting to explain the psychic processes by means of the physical, and the reverse, see above pp. 154-64.

Finally the problem whether reality 1 is or is not covered by reality 2 falls away altogether, see above p. 164. Kant thought that he could establish that, about this reality, the world in itself, we know nothing. The same is implied in the view of Socrates: I merely know that I know nothing. According to the foregoing investigation these views of Kant and Socrates are untenable. Instead of saying about the world in itself: we merely know about it that we know nothing, the truth is that *we do not even know this.*

We shall now proceed to consider more closely the relation between descriptive and evaluating science.

III.

Descriptive and Evaluating Science.

If we start from the reality concept developed through the factors of cognition, our knowledge of reality, the object of all descriptive science, comprises three postulates or propositions, namely (1) that something *is*, (2) that something *has been*, and (3) that, according to the law-governed interrelations, something *will be*. The experiment is a fourth form of scientific postulate. Most nearly allied to postulate 3 is the ascertaining experimental knowledge. There is no essential difference between 3 and the ascertaining experiment. Whether the substances x and y are mixed by nature herself and this change, the cause a, produces a new substance, the effect b, or the mixture is made by human hands or instruments, the natural course is, epistemologically, the same. But this course is not in itself changed if man makes the chemical compound for the purpose of producing effects which are of benefit to mankind. But since the natural course is here deliberately directed by man and gradually more and more methodically by science for a purpose which is not that of nature herself, outside human nature (and the organic world, see below), we have here a more complex form of thinking which also requires another linguistic form than the expressions: is, has been, and will be. Even the latter does not suffice. In order to express the purposive experimental utilisation of the law-governed interrelations in nature we must either use the conditional form: if man *wants to* produce change or effect b, he *must* first produce change or cause a, or we may use the briefer phrase which in reality means the

same thing: man *must*—or shall or ought to—start *a*, the cause, in order to produce *b*, the effect.

The latter form of thinking and its linguistic expression, called in the sequel form 4, the evaluating experimental knowledge side by side with forms 1, 2, 3 of all ascertaining knowledge, is then, as shown in the foregoing part, the prevailing form of thinking in all human work, in all occupations and their technique, in all technical natural sciences, in all medical science. And as I have shown above, it is quite the same form of thinking, evaluating experimental research, which must prevail in the future in all ethics and jurisprudence if they are to be based on an empirical, not an a priori foundation. Hence the scientific ethics of the future cannot in my opinion, like the moral teaching of the religions or Kant's and similar philosophers' a priori duty ethics, posit any absolute commandments. In this sense scientific empirical ethics cannot use the words you shall, you ought to. Empirical ethical experimental research can only, in my opinion, say to men: if you want to avoid such and such harmful effects or changes in your lives, you must bring about such and such changes or causes; that is to say, practically behave in such and such a way. According to this, then, ethics can only be a psychic medical science, a doctrine of character or conduct, which continues the treatment of the body by medical science with a similar empirical experimental treatment of the soul. But of course there is nothing to prevent our also using the other above-mentioned expression: You ought to—or must or shall—act in such and such a way if you want to obtain such and such beneficial results, as good health, great working power and skill in your occupation, safe social conditions; for all this is also largely dependent on your psychic way of life, your character. Only it must constantly be kept in mind, here too, that the expressions "must, ought to, shall" do not mean anything but the same experimental, empirical testing and evaluating as they mean when we are confronted with the problem of choosing the best construction of a bridge or the best method of curing tuberculosis etc.

But even though we cannot on a scientific basis get any farther than the above-mentioned indication of methods of life which may be called the hypothetic imperative, I do not mean to assert that the categorical imperative of religion is without value in the moral sphere. On the contrary, the categorical imperative of religion has the very greatest personal human value. To the individual it affords a support to the purely scientific hypothetical imperative whereby the latter is viewed in a higher light, in a wider perspective. We must merely here for the sake of clarity keep science and religion quite apart.

As, scientifically, we are everywhere concerned with the same form of thinking, we may in the last instance say with full justice *that* we ought to,—or must or shall—close the circuit if we want to have light, *that* we must mix substance x with substance y if we want to produce substance z, *that* we must use construction x to produce a particular form of bridge, y, *that* we must introduce a particular substance e. g. a liver or insulin preparation, into the human body if we want to counteract the diseases pernicious anemia and diabetes respectively, *that* a man must exercise industry and selfcontrol if he wants to gain a living and attain technical skill in so doing, and *that* human beings should take care not to injure their fellow beings.

Owing to the extreme complexity of the fourth form of thinking it is quite understandable that all recent epistemology and investigation of ethical phenomena have not so far been able to validate ethics and jurisprudence. Since recent science rightly rejected the a priori, absolute moral commandments of earlier ethics and religion, and since science merely seems to be the ascertainment that something is, the abovementioned knowledge 1 (or has been, knowledge 2), the prevalent school in presentday ethical and legal research draws the following conclusion: Of any assertion that something is (or has been) we may say that it is either false or true; but of the assertion that we must or shall or ought to act in such and such a way we can say neither that it is true nor that it is false; consequently this assertion is logically meaningless; the moral and legal assertions must therefore be supposed to be mere outbursts of emotion without any scientific meaning. Consequently no scientific foundation can be given for morality and law, but they must be supposed to be based on a logically unintelligible mysticism.

In this domain too, the ethical, religion and science do not conflict. These spiritual forces have each its own sphere; and their spheres do not clash. Through the channels of scientific experience we can only arrive at the hypothetic imperative; but it does not follow that the categorical imperative is wrong because it cannot be proved by scientific methods. Perhaps the human faculties of cognition can only apprehend an infinitesimal part of existence; there are probably wide, interminable expanses which science can never reach Kant was mistaken in thinking that the categorical imperative could be scientifically proved; but he was right in supposing that this imperative is ultimately derived from that world, das Ding an sich, which it is not given to humans, with their faculties of cognition, to reach.

It is to the interest of both these spiritual forces to keep religion and science apart. When this sharp distinction is maintained, all conflict between science and religion will vanish as quite superfluous and absurd.

The whole of this argument, however, rests on an error of scientific method due to a failure to sift the problem to the bottom. It is clear that if we take knowledge solely in sense 1—as knowledge that something is or has been—and then confront this knowledge with knowledge 4—that something must or ought to be—it is understandable that to a superficial reflection an abysmal difference may be pointed out between is and ought to be, which cannot be bridged, and that the general tendency in presentday ethics, jurisprudence, and political economy, therefore,

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If the above-mentioned trend prevalent in the ethical investigations of today—ethical nihilism—is right, all bringing up of the young in schools and the family must consistently cease, all evaluation of persons, public as well as private, all criticism of the conduct of social institutions or private societies must cease, just as all courts and prisons must suspend their activities, nay, all social legislation must cease, for modern men cannot of course openly teach children, young persons, law-breakers or others some judgments which are logically meaningless, for which no scientific foundation can be given, see above pp. 61-65. The adherents of the prevalent school comfort themselves by the thought that these purely theoretical researches and their negative results will not have any influence on men's lives, that men will keep on judging, evaluating themselves and others, bringing up children, and punishing law-breakers.

This, however, is a delusion, Nowadays, when a respect for science is great and widespread even among common people, the latter will soon realise that when science itself gives up all legal and moral rules, that when these cannot be given any scientific foundation, then there must be full liberty to behave as one likes; and all inhibitions by laws and the like must as soon as possible be dispensed with, and the laws etc. as soon as possible abolished.

But further, the prevalent school must be consistent in its thinking, and hence realise that it is faced by an alternative: either this school is right in thinking that all moral and legal judgments are merely logically meaningless outbursts of emotion, and that, consequently, neither morals nor law have any scientific foundation; and in that case the inevitable consequence must be that all bringing up of children and young people in schools and by parents, all punishment of criminals, all criticism of social institutions and of public and private individuals must cease; or else there must be something wrong, something scientifically untenable in the prevalent view, an error in the scientific method of thinking of this school

In a time such as ours, the most recent, when the struggle for power is raging all over the globe, without any kind of moral or legal inhibitions, it will be particularly futile to fall into the delusion that it would have no consequences if science maintained that morality and law have no scientific founation If science, which is the only thing that men may still be supposed to defer to, cannot give these values any foundation, then we may look forward to a future in which human civilisation will perish in everybody's fight against everybody. At the same time mankind is threatened by a dissolution from within, in the individual. To any keen observer it is noticeable that during

driven to this narrow alternative, knowledge 1 and 4, is to assert that only a factual description of ethical, legal, and economic phenomena, an ascertainment devoid of evaluation, of what "is" in these domains, is science, while the investigation within these sciences of what "ought to be" is not scientific. This tendency is understandable, since so far we have had no deeper epistemological investigation of what knowledge is, of the contrast between is and ought to be, and of other possible forms of knowledge.

This whole school has overlooked the fact that it is an error in scientific method to compare knowledge 4 with knowledge 1. The knowledge with which knowledge 4 should be compared, if the right scientific method is used, must be knowledge 3, since precisely these two kinds of knowledge, knowledge 3: that something will be, and knowledge 4: that something must or ought to be, are both a knowledge of the future based on conclusions from past to future causal relations.

Knowledge 3 all are agreed to refer to strictly scientific knowledge, since this knowledge includes all the laws of natural science. For we are not here concerned with the assertion that something may possibly happen in the future, but with the assertion that something must necessarily happen, since natural science, on the basis of multiple experiences of law-governed interrelations, of the constancy in the changes of nature, for the present relies on and works on the assumption that the same constancy will also appear in the future, despite the fact that this cannot be proved on strict epistemological grounds. But if we now look more closely at this knowledge 3, the fundamental assumptions of natural science, it turns out that the same objection applies to the postulate of this knowledge which the prevalent school raises against knowledge 4, namely that these assertions can neither be said to be false nor true. These two judgments: true or false, do not exhaust the whole domain of

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the last generations with the prevalent negative attitude towards all moral values from the side of the spiritual leaders, an alarming laxness has spread, not least among young persons, in sexual and other material matters. Here too it will be futile to cherish any illusion that science, which is the only spiritual authority nowadays, would be able to maintain that there is no scientific foundation for morality and law without this negative result involving consequences for the young and altogether for the whole attitude and future fate of the people. Even this, however, cannot be taken into consideration *if* the prevalent negative trend is tenable. No laymen's movement, such as pragmatism or the like, must interfere and try to falsify the results of science. But the sole question is *whether* ethical nihilism is scientifically tenable, which question we shall try to elucidate above.

thinking but only part of it, namely that part which concerns what has happened or is happening now. In assertions concerning knowledge 3 and 4, i. e. concerning the assumptions of the laws of nature, of the ascertaining and evaluating experimental sciences, which all concern what will happen in the future, we must use other expressions than true and false, expressions that cover these forms of thought. Of the assertions that the motions of bodies will in future follow Newton's law of gravitation, that substances x and y on being mixed will become substance z, that the influence of the poison a on the organism b will produce the effect c, that control of the appetite for alcohol or food and of the sexual impulse may preserve health and working capacity, of all such assertions we must use the propositions: this is necessarily or very likely *right* or the opposite, namely according to our past and present experience so far of the law-governed interrelations. Of the modes of procedure which, according to our experimental results up to now, are of benefit to mankind, whether it be in the technical natural sciences, in medical science, ethics or jurisprudence, we must say that they are appropriate or expedient, that is to say, that the purpose or intention aimed at, the result in the future, will be effected by applying the cause.

The scientific experiment, the ascertaining and evaluating, must as largely as possible be extended to include everything in the universe; thus, as shown above, it cannot be limited to man's body, but passes by gradual transitions to the sphere of the soul and thence to the wider relationship, the greater psychical organisation we call the community. In these domains too, as will be shown in the following lines, certain experimental natural laws may be laid down, more particularly the two which have been indicated in the preceding part, and which I will call the law of character (or the law of control) and the social law or the law against persons injuring each other. The former law and similar laws should be treated in individual ethics, the latter and related laws should be dealt with in social ethics and jurisprudence and partly in social economy.

After trying in the above to elucidate the difference, in scientific method, between the descriptive and the experimental evaluating scien-

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That a phenomenon, according to the causal relations, will occur, will be in such or such a place, is not the third theorem of trivalent logic—after the two first that something is true and that something is false—namely that something is possible, that something will possibly happen, cf. book 1, pp 360-61, but that something must necessarily or very likely happen.

ces, we may now set forth the system of the sciences. Epistemology or Theory of knowledge must come before all the specialised sciences. It must treat all the fundamental problems and fundamental concepts which are used in all specialised sciences, such as the concepts of reality, existence, experience; and further concepts such as observation, time and space, causual relation, or law-governed interrelation, the testing of the truth or rightness etc. of all judgments. Thus epistemology becomes *the general part of all sciences.* Further it must be pointed out that to every descriptive science corresponds an experimental evaluating science. The descriptive sciences are sometimes called the theoretical sciences; and the experimental evaluating sciences are also called the practical or applied sciences. The ascertaining experiment is also used in the descriptive sciences. In the experimental or practical sciences both ascertaining and evaluating experiments are used, but of course most frequently the latter.

According to the above we may then give the following outline of the system of sciences:

A. EPISTEMOLOGY OR THEORY OF KNOWLEDGE.

The General Part of All Specialised Sciences.

B. THE SPECIALISED SCIENCES.

I. THE DESCRIPTIVE OR THEORETICAL SCIENCES.

a. *Physics. Chemistry. Astronomy. Mathematics.*

b. *Descriptive Botany* (also called Systematics, giving an account of the species and genera in the plant world), *Plant Physiology* (describing the organs, metabolism, and vital processes of plants). *Plant Pathology* (describing plant diseases).

c. *Descriptive Zoology* (Systematics: phyla, classes, orders, in the animal world). *Animal Anatomy. Animal Physiology. Animal Pathology.*

d. 1. *Anthropology. Human Anatomy, Physiology, Pathology.*

2. *Psychology. History* (including *Archaeology), Philology. Psychiatry.*

3. *Sociology* (description of the human community, its forms of organisation, culture phenomena, development). *Positive Jurisprudence* (descriptive account of the laws in force and other

law). *Political Economy* (the theory of political economy, descriptive account).

e. Some few sciences owing to their wide range impinge on the domains of several of the above-mentioned groups; e. g. Geology, Biology. Thus geology impinges on groups 1 a and b. Biology, the general science of life has for its opject the study, by natural scientific methods, of life in all its forms hence it embraces groups 1 b, c, and d.

II. THE EXPERIMENTAL EVALUATING OR PRACTICAL (APPLIED) SCIENCES.

a. *Applied Mechanics. Mechanical Technology Electrotechnics. Technical Chemistry. Civil Engineering* (construction of roads, bridges, etc.). *Chemical Engineering, Hydraulic Engineering and* the like.

b. *Agricultural Science* and *Forestry, teaching the rational treatment of the various utility plants, and how to combat their diseases.*

c. *Veterinary Science, dealing with the rational utilisation of the various domestic animals and how to combat their diseases, hence with nutrition, animal surgery, and medicine.*

d. 1. *Medical Science,* i. e. the science, with many subsections, dealing with the rational treatment and healing of physical diseases in man.

2. *Psychotherapy* (Mental Hygieine). *Individual Ethics. Aesthetics.*

3. *Social Ethics. Jurisprudence. Applied Social Economy.*

e. The experiences of the sciences included under I e—geology and biology—are utilised in various applied sciences from technical mining, agriculture, and forestry to medical science and ethics.

As will be seen, there are, as a rule, corresponding to each of the groups under the descriptive sciences, groups of applied sciences, the latter being based on the experiences of the former. The sciences under I gather observations, noting differences, likenesses, and causal relations, hereunder temporal and spatial relations between them, and give a systematic account of all these observations. The sciences under II utilise the experiences thus gained, particularly the law-governed interrelations or causal relations thus far noted; they interfere with these relations—whether it be with hands, implements, machines, by technical means, or by psychic influences—and by deliberately and accord-

ing to plan introducing particular causes, they produce definite beneficial effects. The two kinds of experimental methods, the ascertaining and evaluating experiment will for convenience be called *a* and *b* in what follows. Experiment—*b* rests largely on the experience created by experiment *a*. And in everyday scientific and technical practice the two experiments merge. In the physical, chemical, and biological laboratories of scientific colleges, numerous experiments are made all over the world for the sole purpose of tracing and noting deeper and other causal connections than those hitherto observed. But often, inseparably associated with this experimenting, *a*, the other kind of experimenting, *b*, with its deliberate interference in the inorganic or organic processes goes on at the same time, and attempts to produce practical effects for the benefit of mankind. Conversely, in the laboratories, chemical or biological, which are often associated with extensive industrial concerns, and the main purpose of which is experiment *b*, there is also extensive work with experiment *a*, without any regard to the direct practical results, because it has been realised that a systematic and thorough experimental knowledge, *a*, is essential to the attainment of great results in experimental knowledge *b*. Thus the two kinds of experimental knowledge go hand in hand in large domains.

Methodically and scientifically it makes no difference whether experimental science is working in a physical or a psychical domain; and the relation between the applied and the descriptive sciences is the same throughout both domains. Thus, for instance, through physics, chemistry and the like (group I a) natural science gives an actual description of the hitherto observed phenomena in inorganic nature, their likenesses and differences and the laws governing the occurrence of the phenomena (knowledge 1, 2, and 3, supported by experiment *a*). And on the basis of this the numerous corresponding technical sciences (group II a) attempt to indicate the numerous solutions, convenient to man, in the working of steam power-plants, road and bridge construction, hydraulics, telegraph, telephone, and radio technics etc. (knowledge 4, experiment *b*). In exactly the same way anatomy, physiology, and pathology (I d 1) give an actual description of all the hitherto observed likenesses and differences and causal connections in the human body and its pathological phenomena (knowledge 1, 2, and 3 and experiment *a*); and on the basis of this knowledge medical science (II d 1) attempts to find methods for a curative treatment of the human diseases, more especially through a deliberate utilisation for the benefit of mankind of the causal connections ascertained by sciences I d 1 (knowledge 4, experiment b). And in the

same way individual and social ethics, for instance, as well as jurisprudence and applied political economy (I d 2 and 3) must utilise in the various domains of human life, for the benefit of mankind, individually and socially, the law-governed interrelations ascertained by means of psychology, history, sociology, positive jurisprudence, and theoretical political economy (Id 2 and 3) supported by experiment *b*. From earlier experience we note that action or omission x results in satisfaction or pleasure y, and that action or omission p results in pain q; and if we find by these or perhaps fresh experiences that there is a causal relation between x and y and between p and q we try in future to bring about the conditions which create pleasure and to remove those that create the opposite. On the basis of this we lay down an ethical or legal rule. To comply with an ethical or legal rule is, therefore, a psychological experiment, a psychological analogue to the physical or chemical experiment. In both cases we learn the art from Nature. To create in the laboratory the chemical and physical conditions for the coming into existence of a new substance and to create in the mind the psychological conditions for the birth of a feeling of pleasure or the satisfaction of a need are quite similar phenomena viewed from the standpoint of scientific method.

Like natural science so also the spiritual sciences: psychology, sociology, history, philology and others must distinguish between knowledge, experience, in senses 1 and 2 and in senses 3 and 4. Psychology, on the basis of our previous self-observations, describes the psychic states, sensations, ideas, emotions, volitions and the like in differences and likenesses and law-governed interrelations, i. e. as these have so far appeared. Sociology, positive jurisprudence, and theoretical political economy give a factual description of the phenomena hitherto observed in differences, likenesses, and causal relations in the human community, and its forms of organisation, its fluctuations in prices and wages, changes within the occupations, the actual laws and decrees in force. History presents previous events in causal relations etc. As in the domain of natural science it is also useful in the field of intellectual science to keep the actually descriptive knowledge gained by previous observations, knowledge in senses 1 and 2, apart from knowledge in senses 3 and 4. As regards method it would be well if the sciences dealing with the human mind, both psychology, sociology, philology, etc. began by ascertaining what has so far actually happened in the field of experience in question, before passing on to 3: the making of general assumptions or predictions about a future actual development —without any deliberate experimental intervention x—, and to 4: the

statement what would be the probable effect of a planned experimental interference (*a* and *b*) by human deliberate decisions guided by the experience thus far gained. This latter knowledge, 4, especially experimental knowledge, *b*, the doctrine of the appropriate effects for the benefit of human life, is furnished by ethics and jurisprudence on the basis of the observations made by psychology, sociology, and positive jurisprudence of the actual psychic states, social and legal conditions, and their relations of cause and effect.

In all the applied sciences there is, as already stated, a constant co-operation between experimental knowledge *a* and *b*, and often an imperceptible transition between them. In these sciences there is also sometimes an imperceptible transition between knowledge 1, 2, and 4. Even in the so-called positive jurisprudence, which in a very great measure keeps to knowledge 1, it is necessary both in interpreting the laws in force and in filling up the gaps in the legislation by analogies and general legal principles, to rely very largely on jurisprudence, i. e. precisely on the application of knowledge 4.

There is also sometimes an imperceptible transition between several of the experimental sciences. This applies for instance to medical science and individual ethics (II d 1 and 2). These are bound to co-operate in several domains. As already stated, physical unsoundness is often due to the lack of psychic control, e. g. in regard to certain indulgences.

Every concrete decision in law, e. g. a judge's decision in a lawsuit, a lawyer's advice to a client, is, according to our previous statements, the expression of experimental knowledge of the same kind as a surgeon's decision concerning the necessity of an operation, an engineer's decision concerning the practicability of a construction and the like. All these decisions depend on an experimental utilisation of the causal relations in nature, external og internal, hence on a knowledge based on past experience, teaching us that if we act so and so, such and such definite effects will result. And a thorough investigation in a legal treatise or report is, like a medical and a technical scientific investigation, an experimental study which, based on numerous experiences of law-governed interrelations in past cases,

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From a purely linguistic point of view the term "appropriate" may be used both where the effects aimed at are injurious and where they are beneficial. But usually the term "appropriate" is only understood to mean that beneficial effects are aimed at; and this is the sense in which it is used in the present exposition.

tries to establish what social treatment—a decision or a rule of law—would be the most appropriate, i. e. will result in the most beneficial effects for the community, if such and such particular changes, also called causes, are introduced.

The applied sciences (II a—e), that is, all technical natural sciences, all medical science (both applied to man, animals, and plants), individual ethics (including pedagogics), social ethics, political economy, and jurisprudence, which all aim at producing, by a deliberate experimental intervention in the causal connection, effects beneficial to mankind, may therefore all properly be called evaluating experimental sciences.

There is no epistemological basis whatever for regarding the applied or evaluating experimental sciences as being any less sciences than the descriptive sciences whose experiences they utilise. We cannot lay down any code of precedence for the sciences. The applied, technical, natural sciences, medical science in all its branches, ethics, jurisprudence and political economy, are just as much knowledge and science as the physics, chemistry, anatomy and physiology, psychology and sociology on whose collection of hitherto experienced sence observations or self-observations in relations, the evaluating experimental sciences are based. That the knowledge of these sciences is concerned with the future does not reduce them to a lower rank than the descriptive sciences, for even the general laws of natural science are also concerned with future causal

Terms such as the "policy" of political economy in contrast with its theory must, according to the above, be regarded as infelicitous In the terms "political", "policy", there is a suggestion of something on a lower scientific plane, while descriptive national economy is supposed to rank higher scientifically. This way of thinking is derived from the earlier, so-called classical period of political economy, when it was thought that the economic life of the community, as a part of natural life, was controlled by general laws of nature with which it was no use for man to interfere by social measures, such as laws, decrees, combines etc. This whole line of thought is due to an epistemological error. We can just as well intervene in causes and effects in social life by definite deliberate measures as we can interfere in inorganic and organic natural processes and change these.

It is another thing that the attempts of the community to interfere with economic life are subject to more doubts and diverging opinions than the applied natural sciences. But this is quite naturally due to the fact that the scientific problems are much more complex in the case of the social phenomena than in that of the external natural phenomena.—Where a planned interference in the economic conditions of the community implies the co-operation of *legislation* there must of course be a collaboration between applied political economics, jurisprudence and positive law. There has, however, often been a

relations. And throughout its researches natural science uses the experiment, that is to say, the planned human intervention in causal relations, the same method that is used in the applied sciences. And, as already shown, there is no essential difference between experimental knowledge *a* and *b* in regard to law-governed interrelations. But finally all science, theoretical and practical, descriptive and applied, as my previous investigation has presumably shown, is ultimately evaluating experimental science in the service of mankind, from the atomic theory and other working hypotheses about the external universe to civil engineering, applied mechanics, medical science and jurisprudence.

But if my previous investigation thus shows that the past and the future of science cannot be separated and are constantly merging, from our use of the factors of cognition in the concept of reality and the logico-mathematical axioms to the directly evaluating experimental methods, the sharp distinction in earlier philosophy between is and ought to be will disappear. Nevertheless we may very well employ a graduation in the *linguistic terms* in view of the habitual usage of thousands of years. Thus we shall still express knowledge I by the present form "is" (and 2 by "has been"); knowledge 3 we usually express by this present form also, though this knowledge in general concerns the future too. Experimental ascertaining knowledge is usually stated sometimes in the present sometimes in the future tense: if *a* and *b* are introduced as causes, then effect *c* "sets in" or "will set in". Evalu-

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lack of scientific co-operation here. But the wide experience of jurisprudence and positive law will make the attempts of intervention in economic life more objective, place them on a more all round basis and rid the investigation of some of the rather subjective proposals which have often set their mark on the so-called "policy" of political economy.

What is called the "policy" of political economy is then, according to its character and aims, just as much a science as all the applied natural sciences and medical science And since the word "policy" has once for all acquired an obnoxious ring and is unconsciously contrasted with specialised objective science, this term ought to be entirely abolished in connection with political economy. The Scandinavian term for political economy: "national economy", also, is not very felicitous, since social economy as an objective science is not concerned with the interest of any particular nation but with the interests of the whole co-operating population of the world. It would be best, therefore, to replace the word "political" by the neutral word "applied", derived from natural science, and consequently in this connection in future to call the so-called theoretical national economy merely social economy, while political national economy or the policy of national economy could be termed "applied social economy".

ating experimental knowledge, *b*, as previously stated, is naturally expressed not only by the future "will", but also by three other futuric forms "shall, must, ought". In technical science we say just as naturally that if we want to get the useful bridge construction a we must or ought to or shall employ the materials *b* and *c* and the method *d*, just as naturally as we say in medical science and ethics that if we want to preserve our physical and mental health, we must or ought to or shall avoid indulgence in substance *c*. But at the same time we must point out that the words "ought" or "must" or "shall" acquire a special connotation in two applied sciences, ethics and jurisprudence, more particularly in our relations with other people. (Thou shalt not kill, thou shalt not bear false witness against thy neighbour etc.); and this is naturally due to the fact that the rule for all intercourse between men gained through the experimental experience of thousands of years, that they must not harm each other, owing to its absolute necessity for all human life, work, and progress, has sunk deep into the minds of mankind.

It is frequently emphasised that in ethics, jurisprudence, and applied social economy there is often much difference of opinion about important questions, as if this reduced the scientific importance of this line of thought. If we go deeper, however, it will be seen that this has nothing to do with the character of these mental processes as sciences. The principal thing is that the scientific method is fixed; and this is the case in these fields if we leave the abstract and barren heights of the previous value-ethics and duty-ethics and, as motivated above, build throughout on a new foundation of sober, practical experience, which, as I have presumably shown, can only be done by means of the evaluating experimental method.

Even in the descriptive sciences we often meet with doubt and great difference of opinion. There are for instance diverging views also on details of the atomic theory and in biological and physiological problems. But it is only natural that there are greater possibilities of diverging views the more complex the natural phenomena are with which we are dealing; and this must especially be the case with such complex phenomena as the human soul and the human community. It is also natural that there should be comparatively somewhat greater possibilities of divided opinion in the applied than in the descriptive sciences. When problems of actual causal relationships in physics, chemistry, and biology are controversial, it is likely that opinions may differ even more for instance in engineering on what is the best bridge

construction under such and such circumstances, in medical science as to what is the best method for the curing of certain diseases x, the nature of which has only been partly cleared up as yet, and in jurisprudence as to what must be regarded as the most rational legal system in a certain part of the community. But surely this is all only a difference of *degree* within the long series of sciences I a—e and II a—e. For the scientific methods themselves, the application of the factors of cognition and the experimental methods must, as I have shown in the preceding part, be fixed for the whole series of sciences. Even in so complex a phenomenon as the human community the difference of opinion will mainly concern the best legal system in certain special domains. It will not touch the fundamental laws for all human behaviour in intercourse with other people, that is to say, if we always apply the sober experimental empirical method, abandoning all obscure emotionally accentuated principles of utilitarian ethics and duty ethics, and consequently, as has been done in the preceding part, strictly limit the ethical fundamental laws to what the collective experimental experience of mankind in this field shows us to be absolutely necessary for the maintenance and growth of human life. About the limited but indispensable social law, that men must refrain from harming each other, it will be possible for all normal reasonable people to agree, just as they would agree about the mathematical axiom that a straight line is the shortest way between two points.

The place of ethics and jurisprudence among the sciences will also, after the present investigation, be given. As shown under the grouping of the sciences, they belong, with medical science and the technical natural sciences, to the applied sciences or,—according to my characterisation—to the evaluating experimental sciences, more precisely to the above-mentioned group II d. In the future there may be changes in the details of the laws or the principles of the moral conduct of the individual, as well as in the legal system and government of the community, exactly as changes are constantly taking place in the methods of medical science for the curing of disease, and in the constructions and employment of material in the technical natural sciences. But the scientific method itself will in future be fixed. Thus it is another result of the epistemological investigation in this book that *ethics and jurisprudence* have been *established as sciences.*

It applies to all scientific principles, axioms, natural laws, both in the descriptive and in the evaluating experimental sciences, as well as in ethics and jurisprudence, that the past and the future cannot be

separated. As shown already, all reality, experience, knowledge, comprise existence in one great interrelation of past, present, and future differences, likenesses, and law-boundness. But if we say that reality, experience, knowledge, also comprise the future, it will be seen that this by no means denotes the whole of the future. There is a very large part of the future of which we have no knowledge, namely all that is *possible*, that *may* happen, but of which we say precisely that we "*know*" nothing. Only that part of the future belongs to knowledge, is included in science and its reality, which we can pre-calculate with *certainly* or *great probability;* but this means: all that will happen according to the scientifically ascertained causal relations. Thus the natural laws, the scientific character of knowledge 3 depend on this, and on this also depends the scientific character of experiment *a* and knowledge 4, experiment *b*, and hence all the applied and evaluating experimental sciences. With this limitation, then, we may establish that reality, experience, knowledge also embraces the future.

As far as I can see, this solves the problem as to whether epistemology and the specialised sciences are empirical or a priori. Epistemology and science on the whole are empirical because they are based on the sum of human experimental experience in the past, but they are likewise a priori in the limited sense that they anticipate the future but only that part of it which depends on the law-governed interrelations so far ascertained, and only with these as a temporary working basis.

IV.

Scientific Proof or Validation.

What we call scientific proof or validation is, according to our statement above, of various kinds. So far as I can see, we may especially distinguish three kinds of scientific proof.

1. In the *descriptive* sciences the proof of the correctness of an assertion is the showing of its agreement with reality in the sense indicated, namely all sense observations and self-observations in likenesses and differences, law-governed interrelations in time and space, the greatest possible correlation. The ascertaining experiment must also be included here; reality is concerned with both the past and the present and the relations of cause and effect of the future.

2. In the *experimental evaluating* or *applied* sciences, such as all technical natural sciences, medical science, ethics and jurisprudence, the proof or the validation consists in the demonstration that such and such

an intervention in the relations of cause and effect has such and such appropriate or beneficial effects.

3. Finally, we must mention the *logical* proof: to deduce a proposition from other propositions, the proposition being proved, by distinguishing and comparing, to be the conclusion contained in, and hence capable of being deduced from, the premises. This proof is of course also used in the descriptive and the applied sciences side by side with the reality proof and the evaluating experimental proof, but in its pure form it is employed exclusively in the so-called formal sciences, logic and mathematics. The final premises of mathematics, the axioms—e. g. $2 + 3 = 5$, or the straight line is the shortest way between two points—cannot themselves be proved by a logical inference, since all other propositions in the last instance are deduced from and rest on these axioms. But these again rest partly on certain observations of reality, partly on an appropriate special application of these, an application which has proved by experiment to be most useful both in the descriptive and the applied sciences. For the axioms of mathematics depend on those aspects of reality which we call quantities, form, number, and in so far agree with reality. But in mathematics we have agreed to abstract these from the rest of reality, especially from time and change; and this has proved convenient.

The general view current among the majority both of the older and the present generation of researchers in philosophy, political economy, and jurisprudence has gradually become so firmly rooted in the inherited distinction between "is" and "ought to be" that the radical view I have put forward above and the resulting new lines of thought meet, and will still for a long time meet, the strongest opposition from all those who have hitherto moved in the old traditional circles, according to which the contention that something is can be proved, while the contention that something ought to be cannot be proved. As a typical expression of the usual traditional line of thought we may quote the following oft-repeated saying: That $2 + 3 = 5$ can be rationally imposed upon everybody, if we start from the numerical series; but that we ought to help our neighbour or the like, cannot rationally be forced upon everybody. This customary way of thinking, which is always accepted without proof, as a matter of course, nevertheless on closer inspection contains several fundamental errors in scientific method.

In the first place the expression "can be rationally imposed on every-

body" is not quite clear. Stress must be laid on the word "rationally", for whether something rational can be forced upon everybody or on the majority or on some, is a matter of indifference. Instead of the expression "can be rationally imposed upon everybody" it would be preferable to use the clearer and more definite: "can be proved scientifically".

But further, in the above-mentioned traditional way of reasoning the different forms of proof, which, as shown above, must be kept distinctly apart though they are all equally good in evidential force, are confused.

The mathematical axioms, as I pointed out above, are not capable of logical proof, but they can be proved by the fact that they partly agree with certain aspects of reality and partly have been seen to be appropriate, useful.

The ethical principles can be proved by the evaluating experimental proof, just like the principles or modes of treatment of medical science, that is, as being appropriate to promote the welfare of man. We cannot then choose, as an analogue to the mathematical axioms, an ethical proposition, the above-mentioned one about helping one's neighbour, which cannot be accepted experimentally, empirically, in the generality with which it is here expressed. It can by no means be laid down as a general rule that one should help one's fellow beings without taking into account their behaviour to oneself or others, and without considering their quality. The decision must here depend on the particular circumstances in the individual cases. In some instances it will be right not to help—where the conduct of the person or persons in question is especially unscrupulous and base, and the quality very mean—in other cases it will be right to help, namely where the circumstances in both respects are quite otherwise.

If we are to choose an ethical principle which can be co-ordinated with the mathematical axioms, we cannot of course take such a dubious proposition, false in its general form, as the above-mentioned utilitarian, but must take the principle which I have pointed out and motivated above, namely the more limited and sober one, that one should not harm one's fellow beings. About this principle it may in the first place be said that everybody will consider it right, beyond contradiction; it will, to use the popular expression, be capable of being rationally imposed on everybody. But in the second place all communities have regarded this ethical principle as so incontestably proved and founded on all human experience that the social authorities in all communities compel men to follow it by all means they have of enforcing the law: punishment, compensation, injunction and the like.

Thus the mathematical axioms can be proved by the reality proof in combination with the evaluating experimental proof; the fundamental ethical principles which I have called the social law and the law of character can be proved by the evaluating experimental proof. And as far as scientific cogency is concerned, these proofs, the reality proof and the experimental proof, are on an equal footing. Hence the above-mentioned current view is scientifically untenable.

When we speak of *verification by experience*, this term is often restricted to mean a single thing, namely *observation, ascertainment* of the agreement of a contention with a given reality, e. g. with the appearance and mode of growth of certain plants. But this restriction of the sense is wrong and is not in accord with the natural sciences as these actually work. Verification by experience in the natural sciences means two things, which I will call respectively (1) *observing verification* and (2) *experimental verification.*

(1) Observing verification means that our observation of nature shows that a notion, a conception agrees with what is actually found or happens in nature, in reality. (2) Experimental verification means that when science, by a certain mode of procedure, interferes in the law-governed interrelations, its interference will bring about such and such results which science has expected as the effect of the use of this procedure.

Exactly the same forms of verification are known from the social sciences. If for instance we can establish as a fact of social psychology the conception that certain crimes have hitherto been seen to arise in such and such social circumstances, we have an observing verification. If, on the other hand, we establish in jurisprudence that a certain interference on the part of the law in the case of these crimes will have such and such consequences, we have an experimental verification. And in exactly the same way we have an experimental verification if we can establish a view in ethics according to which a certain conduct on the part of a person will have such and such consequences for his life.

Sometimes it is emphasised that ethics cannot be a science because we can object to individual ethics: Why should I show self-control and thus improve my health and skill at my occupation if I prefer to enjoy life and take the consequences; while it may be objected to social ethics: Why should we aim at the satisfaction and progress of the community? These

questions are just as irrelevant from a scientific point of view, as if we would ask: Why should we use the best construction of a bridge across a river, or: Why should we diet ourselves, if we are suffering from diabetes? Individual and social ethics, according to my reasoning above, cannot as an experimental science, any more than engineering or medical science, lay down absolute rules. The new individual ethics says to the individual: If you want to obtain such and such a beneficial effect, y, in your life, you must introduce such and such a cause, x, a certain behaviour on your part. And in the same way the new social ethics does not say imperatively, absolutely, to the community and its members: You ought not to harm each other, but more modestly and soberly, purely scientifically: If the community wants to obtain a number of beneficial effects—in regard to working peace, production, distribution of work, the reduction of suffering etc.—it must in all laws observe the principle that men should not harm each other. And all communities have felt so increasingly convinced and especially in our day, by this experimental proof that the people who harm others have by them been beheaded, castrated, sterilised, confined for life or a shorter time, or fined etc.

Hence, when ethics and jurisprudence have been established as shown above, that is, as experimental evaluating sciences, the questions referred to above will disappear as the last manifestations of a way of thinking which will die out and is scientifically without value.

All the practical or applied sciences, however, do not only show us the means, but also the great purpose lying behind and justifiing the efforts of all these sciences, from mechanics, chemistry in industry to medicine, ethics and jurisprudence. This great purpose or end is the self-preservation of mankind. One cannot here object that this great purpose cannot be scientifically proved, because, as I have shown above, the validation of all science, even mathematics and physics, in the last instance, can be founded only on this very same purpose: the self-preservation of mankind.

The task of the preceding enquiry was difficult, so it is no wonder that it had to take its own course. Its object was not only to establish ethics and jurisprudence as science but also and in the first place to establish epistemology as a science and thus in the last instance to give all scientific reasoning its final firm foundation. In an age when all values, moral as well as legal, are tottering, when the conduct of men and states is

detached from all ideals of justice and goodness, when these are rejected and discarded as antiquated, as obscure mysticism, and men and states find themselves in that void which is called beyond good and evil,—in such an age even science and the belief in its objectivity totters. Triumphantly the adherents of the current opinions point to the admission made by science itself that its ultimate premises, from which all scientific proof is deduced, cannot themselves be proved; and those views and opinions which actually triumph by might will then be adopted as true. And since even epistemology has so far been divided into antagonistic schools which cannot even agree about reality and truth, and science thus has no foothold in existence, while in ethics we meet conflicting trends some of which assert the impossibility of all ethics, it will be seen that all values are tottering, not only the moral and legal ones; but in this world crisis mankind is losing both truth and justice as ideals.

At the beginning of the investigation it was, then, clear to me that epistemology and ethics cannot be separated. And as I have tried to show, all cultural values, science and art, character and society are all in the same boat, the common boat of humanity. First it had to be ascertained whether there was anything at all that could be called truth, objective knowledge; and if so, wherein it consisted, and whether it could be proved. Only afterwards could it be decided whether there was an objective knowledge about justice and other ethical aims. The ultimate decision concerning the problem of truth and reality lies with epistemology, if the latter is what it should be, the general part of all sciences, their final foundation, and the elucidation of the scientific methods. A decision had here to be arrived at concerning the still pending unsolved conflict between the various schools of epistemology. If this solution could be reached, and if truth and reality, the central concepts of science, could be proved, then we might begin to investigate whether the fundamental concepts of ethics and jurisprudence could also be objectively proved, whether certain ethical and legal fundamental laws could be proved. But this investigation had to be carried out just as objectively, without any preconceived opinions, ethical or anti-ethical, as the purely epistemological investigation of the fundamental concepts and laws of science. Our preceding enquiry, where it tried to go to the bottom of things, was bound to go farther afield, to other parts of the world, and so far as I can see, it has validated the human cultural values. It has shown that these are deeply rooted in the existence of man, as a being possessing feeling and will, and arise from it by a natural necessity. The investigation has shown that the foundation of science, the concepts of reality and truth,

belong to the same deep stratum of existence, that there is really something which is irrefutable objective truth, just as there are reliable scientific methods. But further, the recognition of this fact led, as already shown, with a consistency that cannot be dismissed, to the discovery that ethics and jurisprudence can be scientifically validated with the same safe starting point and by the same reliable scientific methods as all other science. Millions of men have through thousands of years had to undergo countless sufferings to learn the inevitable truth of the limited ethical and legal propositions, at which our preceding enquiry arrived, the propositions relating to character and social life. And the time we are now living through with its incessant destruction of human life and cultural values will at last, when all is said and done, as the sum of everything give the states too, through interminable sufferings, a fresh experimental proof of that fundamental law for the intercourse of individuals and states, without the triumph of which there can be no future for mankind, and all cultural values will be destroyed, and which can alone secure working peace for men and for the production of values. No human rule seems to be more elementary than what I have called the social law, that human beings shall not harm each other; and yet the last two world wars show that the inhabitants of this globe have not yet learned to maintain even this elementary, most indispensable rule.

CHAPTER 12

BASIC CONCEPTS AND METHODS OF SCIENCE

1.

Definitions and their Limitation.

All *definitions* consist in a definitely formulated cognition or knowledge and as such aim at tracing the phenomenon X, something that is not known, or not sufficiently known, back to known elements, a, b, and c, and at expressing X in terms of a, b, and c. This process of definition, however, can only be carried on for a limited space of time. Ultimately all definitions, no matter within which science they are made, will lead to some basic elements, incapable of being defined, where definition must come to an end. If, for instance, we ask what helium is, the reply will be that it is a chemical element having such and such properties. If, next, we ask what a chemical element is, the reply will be that it is a substance which, so far, it has not been possible to decompose into inhomogeneous components, and the atoms of which consist uniformly of a nucleus in which there are a certain number of protons and—in circles round the nucleus—a certain number of electrons. Helium, which is number 2 in the periodical series of chemical elements, has the atomic weight 4, 2 protons and 2 neutrons in the nucleus, and 2 electrons outside it. If, next, we ask what a proton and an electron are, the former is defined as an electrical, positively charged particle, the latter as a negatively charged electric particle which moves in relation to the atomic nucleus. A particle is part of the matter, that is, something extended in space, capable in ordinary visible objects of being felt by the sense of touch. Both time and space enter into the phenomenon of *motion*, all motion being a changing of position in space in the course of a certain time. All motions take place in a certain *law-governed* (or at any rate statistically frequent) interrelation; and space and time, motion, matter, regular interrelation, are all inconceivable without our conception of *differences* and *likeness*.

The concepts of motion, matter, particles of matter, may be called *basic concepts of specialised science*, namely of natural science (more particularly physics and chemistry). When we have to say that we do not know what motion or matter are, it means that the process of definition within this specialised science stops at these basic concepts, that these cannot again be deduced from anything which is already known within this specialised science. If we go outside this, and if we attempt to penetrate beyond these basic concepts in the specialised sciences, we shall end, as I have previously shown, in the fundamental cognition of differences and likenesses, causal relation, time and space.

If, as a further illustration, we take another natural science, namely from the organic world, and ask what, for instance, clover is, botany will define it as a genus of the class Papilionaceae which besides the characters common to all Papilionaceae has certain special distinguishing marks that separate it from the other genera. If, next, we ask what a papilionaceous plant is, it will be defined as an order of the dicotyledonous free-petalled plants. If we ask what a plant is, it may be defined as a living being with certain special properties; and a living being or an organism is a substantial phenomenon existing in time and space which undergoes certain changes characteristic of all life, especially birth, metabolism, growth, death. But in these processes we meet with something ultimate, inexplicable. And in fact, scientifically, here too we stop at a final indefinable phenomenon, life itself, organic in contrast with inorganic matter. And at the back of the specialised science we have here again the ultimate factors of cognition, difference and likeness, law-governed interrelation, time and space. Our distinguishing faculty must, on the basis of the sense observations made so far, draw a distinction between organic and inorganic nature.

In the psychical sphere too, in the phenomenon of consciousness, we meet with something final, indefinable. Thinking, feeling, moods, volition and the like are called psychical phenomena in contrast with objects in space and their movements. Here again our conception of difference and likeness draws a line, namely between the phenomena having extension in space and our inner experience. We cannot explain or define the psychic in terms of something we know better than the psychic, and we cannot explain the physical in terms of something we know better than the physical. If this be granted, we may in future avoid all the ingenious and prolix attempts to explain psychical phenomena by physical parallels, with the copious use of words in quotation marks which

merely show that this abundance of words does not explain anything whatever.

The *ultimate basic concepts* of the specialised sciences, such as the psychic, the physical substance or matter, motion, like the factors of cognition themselves from which they spring, our conception of difference and likeness, lawboundness, space and time, are indefinable. Not only the formal sciences such as mathematics, but also the practical sciences have their *ultimate indefinable concepts.* To declare that some of these are inexplicable, e. g. the psychic experiences, and not others, e. g. the motions of external bodies, only shows imperfect knowledge of the nature and course of the process of definition, and a lack of clear thinking.

One difficulty in the work of definition is the fact that there are several different words for the same phenomenon and conversely that the same word is used in different senses, as we shall instance in the following lines. Epistemology must point out these sources of error, and every specialised science must in its special field be aware of and watch for these sources of error in the use of scientific terms. One of the greatest difficulties of all science is the correct use of the concepts and the words. In many cases enquirers make the mistake of using concepts and the terms denoting them without clearly and precisely defining them, but occasionally also the error is committed of trying to define concepts which are, in fact, indefinable. The way to avoid these two errors is, as previously stated, to distinguish between (1) all the usual concepts of the specialised sciences and (2) the ultimate basic concepts of the specialised sciences from which concepts 1 are derived, for these latter basic concepts are derived directly from our fundamental factors of cognition, which cannot be deduced from other premises and are therefore indefinable. Hence we must ask whether a given concept is one of the ordinary basic concepts of a specialised science traceable to still deeper-lying elements in the process of recognition, or whether we are confronted with the ultimate basic concepts in science and epistemology, where the process of recognition must irrevocably stop. Concepts 1, according to our statement above, include for instance metal, sweet pea, reptile. Among concepts 2 are for instance the psychic, the physical, space, time.

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2.

Errors of Method.

The history of philosophy and science affords many examples of human errors. *Errors of scientific method* have often led even considerable thinkers to barren thought; and in the course of time humanity has been burdened with numerous volumes whose authors have strayed into desert regions. Unfortunately it is not only philosophers of inferior rank such as Schelling and Hegel who have indulged in obscure ideas, not sufficiently reasoned, and drawn unjustifiable conclusions from them. Even considerable thinkers such as Spinoza and Leibniz cannot be exonerated from these errors.

In the preceding analysis I have tried to throw light on the various errors of scientific method. But there may be reason to recapitulate here the chief results. So far as I can see, some of the most fatal errors of scientific method are: the use of *too comprehensive concepts*, of *false analogies*, and of *obscure undefined concepts*.

a. The All-embracing Concepts.

As an instance of too comprehensive concepts we may mention the concept of substance in the earlier speculative philosophy. There was a material substance and a soul substance; and conslusions were drawn from these concepts, e. g. as to the immortality of the latter. Spinoza even created a substance-concept which embraced everything, both the material world and the soul. In various places Spinoza gives various definitions of the term "substance". To the lack of clarity may be added his arbitrary postulates. Spinoza maintains that of the attributes of universal substance we know only two: extension and thought (for matter and mind respectively) but that in reality it has an infinite number of attributes. These are mere imaginings about things that Spinoza does not, any more than anybody else, know anything about. From arbitrary postulates interminable amounts of brilliant philosophy have been produced in the course of the centuries. But they are without value. Spinoza identifies his universal substance with the whole of nature, and the latter and God are identical to him. What is gained by such all-embracing concepts is not seen. Nothing is won for science. Many are tempted by these grand "simplifications" of thought, by such immense economy of reasoning. They overlook the fact that the simplification or economising of thought has only a certain limited scientific value. It has its natural significance for *the general concepts of the*

specialised sciences, since these can then operate with larger quantities of experiences en bloc, by collecting a number of individual phenomena in groups, e. g. the general concept "horse" or "mammal", "animal", "plant", "chemical element" and so on. But in the exaggerated simplification manifested in all-embracing concepts, the fact is overlooked that human thinking consists just as much in *distinguishing*, in pointing out differences, as in pointing out likenesses, and that the more comprehensive a concept becomes the more *empty* it will be. Spinoza's concept of substance is the emptiest of all. In reality it says nothing at all. *Locke* was right in pointing out that we do not become wiser by being taught that behind the properties of things there is something that "is set under" or sustains them, which is all that is implied in the Latin word "substantia". If this is to be translated into words with any definite meaning, it must be by the word "matter". But the definite meaning of this word must not be obscured; it only naturally includes the physical, the substance we meet with in external nature, and the elements into which modern chemistry may resolve them. To call the human soul or consciousness a "substance", a "mental substance", is a falsification of concepts and does not add to our knowledge. To transfer the concept of matter or substance to the psychic sphere is merely to veil the profound *difference* in existence between these two spheres, the psychic and the physical, and may inveigle us into conclusions incapable of proof, as for instance that the soul as "a substance" must be imperishable like the substance of the external world. In the methodically correct process of cognition, the process of recognition illustrated above, we stop at irreducible final differences; and among these is the difference between the physical and the psychic, between the outer and the inner reality. All embracing concepts intended to bridge the gap between them, such as *substantia sive deus*, are merely the outcome of a false brilliance. They are of no value to science; nor are they, so far as I can see, of any value to religion. It is no improvement to replace the all embracing concept of substance by an all embracing concept of force as Leibniz would do. The concept of force or the concept of energy (i. e. the ability to perform a work) is a basic concept of specialised science which has its quite definite limited application. The concept of force is after all only a symbolical term for law-governed interrelations. Nothing is gained by the old philosophical quip of considering the whole physical, material universe as a "primal force" or as the "radiation" of a primal force. And still less is gained by also regarding the psychic as a "force" and then, disregarding the fundamental

difference between the psychic and the physical, conceiving the primal force of which the physical universe is said to be a radiation as "mental". This is a quite unwarranted conclusion. We do not know that the electromagnetic or any other energy in the physical universe is mental any more than we know that the matter of the same universe is so. All speculations about force and a "primal mind" are of as little scientific value as Spinoza's reflections on a universal substance and its attributes mind and matter, and the monads of Leibniz. Certain idealistic philosophers think to gain something for idealism as an interpretation of the world when recent conceptions in natural science show a tendency towards the concept of energy rather than towards the concept of substance, matter. In reply to these it must be soberly said once for all that the forms of energy in the external world: electricity, magnetism, radio-activity etc. are not psychical, have nothing to do with human consciousness or its mental, ideal values, and that it is no service to religion to lean on that kind of illusion.

b. False Analogies.

Much erroneous thinking in philosophy and the specialised sciences rests on false analogies. From earlier times it may be instanced that Aristotle and after him the medieval thinkers, the scholastics, supposed that the mechanical world too, including the celestial bodies and their motions, was guided by purposive causes. The false analogy here consists in unjustifiably transferring to inorganic bodies a concept which can only

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Hegel's philosophy is marked by a number of errors in method: (1) He operates with all-embracing concepts—such as being, non-being, becoming—(2) he uses arbitrary analogies incapable of proof (thought evolution—world evolution), (3) he draws logically wrong conclusions, and (4) he does not verify his conclusions by experiment.

If as a counterpart to Hegel's unsound methods of thought we want to find an example of thinking on sound sober principles, we may instance *Descartes'* method. He laid down four rules for thinking: (1) the starting point must be clear and unambiguous. If this means that we must begin with assertions the correctness of which is admitted by everybody, as e. g. the mathematical axioms or real sense observations, the rule is right. (2) We must divide the difficult problems into so many parts that we can find our way to the best solution. (3) We must think in an orderly way (i. e. systematically), passing from the simple to the more complex. (4) We must take so wide a survey that we can be sure of not having forgotten anything. See Discours de la méthode 22 seq.

These rules do not say directly that we are to start from experience and later always verify our views by experience. But it must probably be supposed that by rules 1 and 4 Descartes was thinking of that very point of getting as many and as accurate experiences as possible as a basis.

be applied to the human sphere and in a wider sense to organic spheres. *Kepler* and *Galileo* showed that the bodies of the universe, stars and planets, and their motions are not an organism but a clockwork governed by mechanical laws. In his youth Kepler still, in accordance with medieval mysticism, supposed the planets to be guided in their orbits by *souls* as a moving force. "But," he says, "when I considered that the moving force diminishes with distance, I concluded that it must be something physical". Many later philosophers might have spared themselves and others much barren speculation if they had remembered this sober reflection. But as late as the beginning of the 19th century, in the age of romanticism, false analogies are again drawn from the organic to the inorganic world. Thus *Schelling* regarded the universe as an *organism*, and blamed Kepler and Newton for their purely mechanical view of the world. On this view it would not be possible to understand "the spirit" of nature etc. Schelling's considerations belong to the endless brigade of philosophies incapable of proof.

When we explain natural phenomena such as the approach of bodies to each other, or the coherence of particles of matter, as the result of "forces"—as a power of attraction or cohesion—we argue from analogy from our own organic and psychic nature in inorganic nature. It has not been possible to prove that there is any justification for this analogy. But it is defensible in physics to employ for practical illustration the short expression "force" for something which it would otherwise be necessary to describe more elaborately in many words (especially acceleration and mass). Even the conceptions "cause" and "effect" are as I have shown anthropomorphic.

Among analogies which are not very happy we have the view of the human community as an organism. This analogy may be justified within certain limits, but it is not suited to be carried out in detail (cf. E R I 74-75, note).

Obscure, Undefined Concepts.

The number of these concepts employed in philosophy and the specialised sciences is immense; and the result has been great intellectual confusion, fanatical controversies, and numerous futile discussions. We may instance the concepts reality; a priori in contrast with empirical; proprietary right; socialism; communism. On the concept of reality see above pp. 227 seq., 210 seq. on different meanings of "a priori". On proprietary right see E R I 102 seq., on socialism and communism ibid. 16 seq.

3.

Deduction and Induction.

Inductive Inference and Law-governed Interrelation.

It has been a widespread view in 19th and 20th century science that a method of reasoning called induction has been the essential factor in the great progress made by the modern specialised sciences. By induction we understand the process of drawing a general conclusion from a number of particular instances. When we have observed in a number of particular cases that phenomenon *a* always occurs in connection with or is followed by phenomenon *b*, we draw the general conclusion that *a* and *b* will always accompany each other in future. And the more particular instances we observe that confirm this interdependence of *a* and *b*, the more certain will the general conclusion, the general proposition, be that *a* and *b* will *always* appear together. The general laws or principles of natural science and other specialised sciences are thought to have been arrived at by such induction.

This view, so far as I can see, is not correct. But it has been fortified to a certain extent by *Hume*'s theory of causation and the inductive logic of *John Stuart Mill*, which is based upon it. As we know, Hume thought that if we had often seen e. g. cause *a*, fire, and effect *b*, the melting of a metal, we should gradually by the constant repetition of these impressions get a subjective feeling and idea that *a* and *b* were necessarily associated and hence also in future would appear together. As I have shown in the preceding part, this explanation of our impression that *a* is the cause of, has caused or effected, *b*, is not correct, since merely a single instance of our discovery of the cause of a change is quite sufficient to make us assume that there is a necessary connection between *a* and *b*, which renders certain their appearance together in the future too, see above p. 112 seq. Owing to Hume's error in reasoning Stuart Mill, who based his view of induction entirely on Hume's theory of the associative inductive origin of causation, landed in a circular conclusion, since he had to admit that in the last analysis all inductive inference depended on causation, but the latter had itself been gained by induction (Part I 174).

Another widespread mistake is that, in contrast with induction, deduction, deductive reasoning, does *not* depend on *experience*, but on the other hand it gives sure knowledge. The truth is, as I have already demonstrated, *that* all deduction is ultimately derived from experience,

namely in its primal type from the apprehension of likeness between two sense observations, and *that* there is no difference in regard to certainty between the two observations that a and b resemble each other and that *a* and *b* stand in the relation of cause and effect to each other (the basis of the inductive inference), for they are both true if they concern the *past*, a likeness or a causal relation between *a* and *b* ascertained in the past, and both uncertain in so far as they concern the *future* (Book I, pp. 174-77, above pp. 126-28).—Only if we transfer the likeness relation to accepted formulae, as in mathematics, can we establish general propositions, the certainty of which is not threatened by the future because by accepting them we have removed them from *time* and all its corruption.

Hence we can presumably establish that:

I. A *deductive inference* or syllogism is certain (1) when it concerns *accepted* concepts (independent of time); but, at has been shown, it is also certain (2) when it concerns the demonstration of likeness between two elements of reality in the past—between two sensations (or complexes of such) already experienced, or two ideas derived from them.

II. An *inductive inference*, or inference from several or many cases to all cases, is as a rule unwarranted.

This inference, so far as I can see, may occur in two different forms; (*a*) When two or more properties in a thing have in many cases been associated, it is inferred that they will also in the future, in observations of things of the same sort, be associated, (*b*) When an event, sense observation 1, has in many cases been followed by an event, sense observation 2, it is inferred that when 1 reappears, 2 also will recur.

Now these two kinds of inferences are generally not merely incapable of proof but actually wrong. Such an abstract belief in the regularity of nature is unwarranted, nor is it entertained in natural science. *Galileo* rightly says that the mere summation of particular instances can never validate the application of a proposition to all possible cases.

a. Because thousands, nay millions of swans have proved white I cannot infer that all swans will always unconditionally prove white. Eskimo in the Arctic regions will generally assume that all bears are white because they have never seen any but the white Polar bears. But natural scientists who have studied bears in many other parts of the world too, know that there are also brown and black bears.

b. Nor is the second inference as a rule justifiable. Even if periodic spots on the sun, 1, have in the several cases hitherto observed been

associated with certain climatic phenomena on the earth, 2, it would not therefore be a matter of course that 2 would always follow 1. Because it has been seen that unemployment 2, and a liberalist social system, 1, are frequently associated, it cannot be inferred that these two phenomena will always be associated.

The inductive inference will only be justifiable, both in cases 1 and 2, if a necessary correlation between these two phenomena can be demonstrated. In case *a*, a quality of a thing will only in the future always be followed by another if, as already *Locke* pointed out, we can arrive at an insight into the internal structure of this thing which shows the close association of the two qualities.

In case *b*, likewise, it will only be possible to establish that sun spots and climatic phenomena on the earth will always be associated, and that a liberalist system and unemployment are always associated if a necessary connection between the two phenomena-successions has been proved.

Hence, in inferences from experience it will not in the first place be the *number* of the uniform *cases* which justifies the inference. Sometimes one case is enough for the scientist; sometimes he draws no general conclusions even from thousands of cases. This will presumably show conclusively that inductive inferences as inferences from the frequent to the general are not as a rule advisable. An inference drawn from the frequent occurrence of two phenomena, simultaneously or in succession, to the general conclusion that they will always occur together is, on the contrary, usually unwarranted. It will only be warranted in special cases.

These special cases, so far as I can see, are only those in which a *causal connection* or a *law-governed interrelation* can be discovered and demonstrated in the simultaneous occurrence of the two phenomena.

The *question* is, however, *when do we assume* that there is a *necessary connection* or interrelation between the two phenomena so that we can regard them as a causal connection or a law-governed interrelation?

This is, so far as I can see, only the case when we meet in nature the phenomenon: *change*, and two or more changes succeed each other in such a way that we cannot see the change y without asking for the preceding change x.

We think that the preceding phenomenon, a, or if there are several, the phenomena $a+b+c$ are a condition of the occurrence of the succeeding phenomena, x, so that x, the so-called effect, will not occur unless a or $a+b+c$, the so-called causes, have first occurred, but that

in that case x will always occur, as for instance when coal burns if it is placed in fire. We do not however meet with this close conditionateness of two phenomena merely because two phenomena are frequently or always associated. Even though a preceding and a succeeding phenomenon are noted in time it is not a matter of course that one is what we call the cause of the other which we call the effect. Day follows night but night is not the cause of the day. It is , however, the whole phenomenon night-and-day, this waxing and waning of the light, which constitutes the change, and of this we may then seek the cause, whether as in the earliest times it is thought to be found in the intervention of the gods, or as in our day in the turning of the earth on its axis.

Necessary or law-governed connection is then, in my opinion, indissolubly bound up with that phenomenon in nature which we call change.

As previously shown, the phenomenon of *change* itself is never a single event but a composite phenomenon of *a series of events successive in time,* such as melting, burning, motion, coming into leaf, withering, the changes summer and winter, day and night etc. (cf. above pp. 128-30). But not all events succeeding each other in time constitute a change. If we see first a cart and afterwards a man coming the same way there is not that connection between the two events which we call a change. A *change* consists of *several different states in succession* in *the same object.* But the *change,* these successive different states in the same object, is what we also call the *effect,* for which we seek a *"cause".*

Changes are something taking place against the background of a situation hitherto stable, an object or some objects which down through a certain period have been identical with themselves or, as we also say, have been unchangeable. For instance, I am in a part of the country which at the moment present an unchangeable landscape: a field in front of me, surrounded by a wood. No wind is stirring, no sound is heard, and the sky is cloudless. It is from such stationary conditions of peace, quietness, and the immutability of things through the years that we derive our ideas of identity, of eternity. In the midst of all this immutability something suddenly happens, for such stable conditions rarely last long; suddenly a bundle of brushwood in front of me catches fire. A *change* has taken place; and at once I ask who or what is the "cause" of this change; it is regarded as the "effect" of something. I then discover, for instance, that a person has come out of the wood behind me and has thrown a lighted match into the bundle. We then say that the fire of the match is the cause of the fire in the brushwood. Sometimes we go a

little further back in the series of events and say: it is the person who by the movement of his hand brought the fire of the match in contact with the bundle of brushwood, who has caused this fire. But actually it is arbitrary to stop at this link in the chain of changes. Prior to the movement of this person who set the brushwood on fire, there must in the person himself have arisen a need or a desire for kindling it. If we proceed further we must ask: what is the cause of this need or desire arising in him, and so forth. If the lightning had struck the bundle, we should have said that it was the "cause" of the fire in the bundle. But here too we may go further and further back in the successive series of changes. Going somewhat further back we may say: it is the collision of clouds or water vapours of different electricity which causes a discharge, the lightning; and in this previous process we have the cause ot fhe fire in the brushwood. But the formation of the clouds or the water vapours may be traced further back to the influence of the sun's rays on the surface water of oceans and lakes etc. Often the succession of changes forms a round in nature; the river flows through the land to the sea, from the sea heated by the rays of the sun rise the water vapours which are condensed into clouds; these move over the land and fall down in the shape of rain; but through numbers of small and large water courses, brooks or rivulets, this rain at last ends in rivers which again flow to the sea, and so forth.

It is adlibitive both in this series of changes and the other series mentioned above, which link in the chain we call cause and which effect. The effect of the sun's heat on the surface of the water is the cause of the formation of clouds: The clouds are here the "effect". But clouds are the "cause" of brooks, rivulets, and rivers getting water. The lightning is the "cause" of the ignition of the tree, but the lightning is the "effect" of the opposite kinds of electricity in the clouds. If in the infinite series of changes we single out a few links in the chain, a few changes, as cause and effect, one reason is, so far as I can see, that our thinking is usually fragmentary; at each moment we can only envisage a limited smaller part of the field. Another reason is that it is convenient to us, for our *practical orientation and exploitation* of nature to keep to the *nearest* links which at the moment are of most immediate interest to us for various purposes. But the convenient or practical arranging and adjusting of our observations is *not* the same as *reality*—this is, indeed, the great error of all pragmatical and economico-epistemological schools—for reality, the true nature of the surrounding world, is the great *interrelation*

of the series of changes. *The "cause and effect" view is an arbitrary selection from the great stream of changes,* from this reality. For a number of practical purposes we enter closely into the individual situation, and after a close inspection establish, for instance that for the effect "fire" to occur the brushwood in the bundle must be dry and the fire with which we want to kindle it of a certain intensity. For the water to flow downward, we establish that the water must be fluid, *a,* and must be situated over a sloping bed, *b.* If one of these conditions is not present, either because the water is not fluid but solid, in the shape of ice, or the ground under the water does not slope steadily downward, as for instance in a pond, the effect, the flowing of the water through the land, will not set in. In ordinary usage we say both that *a* and *b* are the "causes" of the flowing of the river and also the "conditions" of this "effect". The finding of these immediate most obvious causes or conditions has chiefly the practical significance that when they have been found, we know in future that if we want to produce the effect *x,* a certain change, we must produce a and b; and on the other hand, we are certain that if we produce *a* and *b, x* too will set in. For numerous purposes we *need not go further back* in the infinite series or process of changes than to the two links which for practical purposes we call "cause" and "effect". How far we would go back in the series of changes depends entirely on that we want to obtain in each single instance. Our limitation to a small section of the great texture of reality, to the situation of cause and effect, thus in the first place means a saving of work. We save time and strength. When it is said that such and such an investigation is only of theoretical, not of practical interest, this often means, precisely, that for the purposes immediately at hand it is unnecessary to go further back in the causal relation or law-bound connection, i. e. in the series of changes, than to a very few links, as for instance the above-mentioned *a* and *b* as causes of the effect *x.* But in epistemology and in science in general the great interrelationship, the infinite series of changes, must never be lost sight of. And often if we go far back in the series of changes, in the specialised sciences too, it is equivalent to scientific thoroughness, while limiting oneself to some few series of changes means superficiality. When studying evaporation from the sea the conscientious scientist will not be content with the limited part of the series of changes due to the influence of the sun on the surface of the sea, but will extend his enquiry to include the question whether currents in the sea itself, its content of salt etc. exert any influence on the evaporation. When it has been ascertained that a man

has set fire to his house, the law will not be content with the fact that the man's deliberate act has as the "cause" set his arm in motion to start the fire; it will also look into the cause of the „cause", his act of will, and regard this as the "effect" of his motive,—for instance his wish to have the insurance sum paid over to him. And jurisprudence and other social sciences going still deeper will examine more closely the relation of this motive to his whole financial situation, his past; as a cause further back in the series of changes it is ascertained for instance that he has bought the farm too dear, or that he has long been addicted to drink and neglected his work etc.

Of course a division of labour may be convenient for the various specialised sciences, one science investigating more closely the series of changes (the relation between the so-called causes and effects): *a, b, c, d,* while another specialised science takes over where the first one stopped and investigates the series *e, f, g, h.* But walls must never be raised between the various sciences preventing one of them from looking into the land of the other. In the relation between the sciences too, research must deal with the great *coherences* of the processes of change in the universe.

The idea from which *Hume* and *Kant* started and which after them has exerted its influence on epistemology down to our own day, the idea that cause and effect are two simple uncompounded phenomena, the last of which, the effect, is somehow derived from the first, must, after what we have stated here and previously, be abandoned. What we call the effect is, as we have shown, a whole series of changing states, and prior to that and succeeding it there are other series of changing conditions sometimes called causes, sometimes effects, according to which circumscribed part of the chain or series we choose as a starting point. The concept of "cause" in its traditional sense and the related concept of "force" must be removed from the processes of change (cf. Book I pp. 299-318 and above pp. 117 seq., 139-40. What we call the causal relation or the interrelation of cause and effect is only *the law-governed relation between the changes.* But granting this, the terms cause and force may still be used in the specialised sciences as short convenient terms for these relationships in certain fields.

It may be said that to "understand" or "apprehend" a phenomenon is partly to trace something unknown back to something known—through our apprehension of likenesses and differences—and partly to trace a phenomenon as an effect back to one or several previous links as causes, i. e. to see it in its law-governed relation to other phenomena. Thus we

say that we "understand" the formation of the clouds when we learn that they are produced by evaporation from the surface water of lakes and seas under the influence of the heat of the sun. This latter kind of understanding—of a phenomenon as a link in a law-governed interrelation— is, however, if we may say so, only a first understanding, for we are not content with an interrelation between the numerous different kinds of changes which we observe directly. We do not according to modern natural science think that we really understand the said process of evaporation until we have traced the whole of this process back to the motion of molecules or still smaller particles of matter (electrons); and altogether we are not satisfied until we have traced all changes in the universe back to the motions of small bodies; and this is because the motion of bodies is something with which we are acquainted from our daily life and thus think we know better than all other changes. In the last instance here too we meet with understanding or apprehension as *recognition.*

The stable, calm conditions, against the background of which the changes appear to us are also merely fragments, limited parts of the great texture of nature. If we go deeper, changes are incessantly taking place even in the apparently most stable conditions. In the unchangeable landscape mentioned above, p. 264, in which I found myself, the, for a while, completely unchanged state is merely apparent. A landscape is for instance rarely devoid of sound; the warbling of a bird may be heard or one of the other numerous sounds of nature. And even if there is for a short while complete quiet, and no movements of animals, clouds or streams take place, there will be changes in myself. I change my position; and even if I try not to make any external movement, my state of mind, at any rate, will change from thought to thought, from mood to mood. But normally I preserve my *identity* with myself despite all the changes in my soul life. It may be this identity of the ego even when changes take place which first makes us, as far as possible, insist on the stable conditions of nature and regard them as long as possible as identical with themselves, and which, even when a change takes place in what was hitherto stable, makes us try to maintain that there is a certain identity, a certain immutability, behind the changes, and since we only partly succeed in this (through the molecular and atomic theory) at any rate maintain that there is a continuity behind the stream of changes. The assumption of this continuity receives a certain corroboration, partly by the fact that there is law-boundness in

the occurrence of the changes, partly in that the changes themselves viewed in the larger interrelation are not actually those sharply divided phenomena which were dissected out as cause and effect in the epistemology after *Hume* but, as already pointed out, constituted a never-ceasing stream, often with imperceptible transitions, which makes it understandable, though Hume could not understand it, that we find a necessary connection, a continuity approaching but never reaching identity. It is, however, idle to enquire whether this temporary identity in the stable things of nature and the continuity in the stream of changes is merely the outcome of the nature of our mind, of our ego, which despite all changes in its psychic life maintains an identity with itself, or whether this identity or continuity is really also found in the world itself, in reality 2. Both things are possible but incapable of proof. Hence there is no room here for ingenious speculations or large systematic philosophies, whereas the wide external law-governed interrelation between the numerous changes observed by us clearly enough occurs in the familiar reality 1. In the limited part of this reality which we have before us in the cause- and -effect situation, we attain to a certain understanding which is especially of great practical value to us when we say that the causes, *a* and *b*, which always produce the effect *c*, and without which *c* cannot set in, are the conditions essential to c's occurrence. This "understanding", as we have previously pointed out, is due to the fact that we here argue on the analogy of our logical conclusion from reason to consequence. Just as we understand the logical proposition $a+b = c$, thus we seem to understand the relation: causes a and b are the conditions of the occurrence of the effect c. It seems to us that here too we might say $a+b = c$. It appears to us that the causes, *a* and *b*, are the premises, and the effect *c* the conclusion. The property of the water: fluid, *a*, and the sloping of the river bed, *b*, are equivalent to *c*, the flowing of the river through the land. When a change in an object takes place because it comes into contact with another object (here: water and the river bed), we often express the conclusion by saying that a property in one object, *a*, (the mobility of the water) and a property in the other object, *b*, (the sloping character of the river bed) are equivalent to or yield the effect *c*, the flowing of the river. But this is merely our singling out for practical orientation and use the interrelations of a single link. In the interrelations of reality, on the other hand, there is a stream of changes; in this stream there is only a certain law-boundness but, as already emphasised, never identity.

Hence the application of the form of the logical conclusion to the relation between the changes, between the so-called causes, conditions, and effects, is merely a symbol, an analogy.

As we know, the molecular and atomic theory means that all *changes* in the physical domain are *motions*, and what we call causal relations are law-governed interrelations between motions. But actually, as has been emphasised in another connection, we do not understand what the motion of bodies is. We cannot trace this phenomenon, motion, back to still better known phenomena. Assuming that the phenomenon that all matter moves in relation to matter is a material primal phenomenon, as also that matter has extension, it may indeed be said that we understand changes of motion (by close action, impact; or distant action, the so-called attraction) by tracing it back to certain fundamental properties of bodies (acceleration, mass). But we do not really understand these fundamental properties either, unless we vould assume a "force"; but this is an analogy from the psychic domain, incapable of proof. In the last instance, therefore, we do not understand motions in the physical domain and consequently we do not understand changes in nature at all. We observe certain law-governed interrelations—between movements, changes in external nature. But to what these law-governed, so called causul relations is actually due we do not know. In a certain sense we understand changes in the psychic domain better than physical changes, but indeed only in a certain sense. We understand them in so far as we have learned by self-observation that we can set external objects in motion by our will and thus perform all sorts of actions. But how this takes place in detail we do not know. Here, in the psychich domain too, we observe certain law-governed or causal relations. But we do not know at all what the psychic is any more than we know what the physical is; and consequently in the psychical domain too, we do not know what law-governed interrelation is or to what it is due. Hence the problem determinism-indeterminism is a pseudo-problem due to an incorrect scientific method. These two schools want to explain phenomena which are among the ultimate irreducible phenomena of the universe: the psychic and law-governed interrelations in the psychic. It is a hopeless task. The problem is insoluble; you may speculate on it till the end of your days without growing the wiser. It is just as idle a speculation as philosophising on what the physical is, what substance or extension is. In historical research, in jurisprudence, and other social science, in psychology and psychiatry it is sufficient—as in the natural sciences—to

note that there are certain law-governed or so called causal relations here, between human emotions, moods, passions, and actions, that certain characters with such and such qualities must be supposed to be inclined to behave in such and such a way, act or omit to act in such and such situations. It is due to this that we can to an certain extent predict human action and behaviour in general, a fact that is of a great importance in all practical knowledge of men, including the bringing up of children and the community's use of punishment and other means of influencing criminals. Here, in the psychical as in the physical domain we may to a certain extent assume that if we have the psychic qualities or changes *a* and *b*, the effect *c* will set in, that *a* and *b* are conditions of c, and that, when we introduce a treatment *a* of a character *b*, the result, a changed behaviour, *c*, will also set in. But the psychic interrelations are much more complex than the physical. Hence is much more difficult to trace a real law-governed connection between that we call causes and effects in human life than in nature. Often we must be content with statistically frequent or regularly occurring combinations. But even where we think we can ascertain law-governed connections between the psychic phenomena, we should not draw positive conclusions from such. Since we do not, even in the physical domain, know on what the relations of cause and effect actually depend, and our ignorance in this respect is at least just as great in the psysic domain, it is scientifically most correct not to draw conclusions, as for instance the determininist school does, in problems concerning guilt or non-guilt in ethics and jurisprudence.

At the beginning of this section I emphasised that generalising from frequent cases of interrelation between two phenomena is only justified if a causal relation or a law-governed interrelation can be demonstrated. It will be seen from the above reasoning that the question as to when such an interrelation is present must be answered as follows. For such an interrelation it must be demanded *that* what we call a change, i. e. a series of different states, *a, b, c,* succeeding each other in time must have set in for the same object, *that* we have been able to trace this change back to another change, *x* and *y*, *x* and *y* being conditions of the occurrence of a, b, c, that is to say *that* when x and y recur, a, b and c will also recur.

For this it is, as has previously been shown, only necssary that a

single case of change and the discovery of the change which is the cause of the occurence of the last-mentioned change, should occur.

It is another thing that the frequent simultaneous occurrence of two phenomena may be a sign of a causal relation or law-boundness and may give one a clue to such a law-boundness. But it must not be regarded as a foregone conclusion.

Further, the frequent simultaneous occurrence of two phenomena is of a certain importance for research *when a causal relation* between them has been demonstrated. In a causal relation there is often not a single, but several, even a whole complex of factors or causes (processes of change). An effect, *a*, may be the result of three factors or causes *x*, *y*, and *z;* but it often happens that at first the scientist only discovers *x*, but not *y* and *z*. Under certain conditions, for instance, we meet with the physical element oxygen and receive the impression that under these conditions, after these previous events, we shall always meet with oxygen. But one day we suddenly come across the allotropic modification of oxygen we call ozone. But it is worth noticing that immediately we ask: what is the cause of this? We then find it in the fact that in the ordinary oxygen molecule there are only 2 atoms, while there are three atoms in the ozone molecule, these substances being termed in chemistry O_2 and O_3 respectively. The more frequently we hereafter find these two forms of oxygen and always under conditions that confirm our explanation, the more is this assumption of a causal relation corroborated. A liberalist social organisation may be one of the causes, *a*, of unemployment, but there are several other causes *b*, *c*, etc; hence it cannot at the outset be denied that unemployment may also occur with a socialist organisation of the community. Taking another instance, the technical progress in industry and agriculture that took place in England in the 18th century, and the extensive industrial enterprise which this technical progress rendered possible is a *cause*, *a*, of the great growth of capitalism, *b*, which the English community experienced in the 19th century. But this does not warrant the conclusion that such technical progress and enterprise will always give rise to a community dominated by capitalism, that *a* will always produce *b*. For it is conceivable that in other communities another cause *x* will arise in addition to *a*, which will have another trend, so that effect *b* fails to materialise and an effect *y* will set in. Thus the causal relation proves to be more complex than first assumed (see further E R I 22-73). Wherever another effect sets in than was anticipated we enquire into the new causes. If we have repeatedly observed in chemistry

that the substances *a* and *b* by being mixed are transformed into another substance *c*, but one day discover that the same *a* and *b* are transformed into another substance *d*, we again ask whether we can find in the other circumstances accompanying the mixing, e. g. a different temperature, pressure and the like, the *cause* of the different effect, *d* instead of *c*.

At this stage, where a certain causal relation has been noted at the outset, which perhaps is not exhaustive, the large number of cases have a certain significance, for the greater the number of cases becomes in which cause *a* has the effect *b*, the less will be the probability that other factors, causes, come into play. In chemistry and plant physiology we can, if we want to ascertain what is the effect of certain particular factors, causes, *a* and *b* alone, eliminate all other irrelevant factors *d*, *e*, *f*, from the experiment, and thus get a "pure" case of *a* and *b*. But the same thing may actually to a certain extent be done in the social sciences, though the cases here are more complex than the chemical and biological field.

Inductive inferences which alone take account of the causes which have hitherto been present or have been particularly striking, and overlook the influence of other factors or causes in related cases may be called unjustifiable generalisations, see E R I 22 seq.

The more deeply we ponder on how many and what causes may concur in a phenomenon, and the more frequently we observe the phenomenon, the greater is the probability that all causes have been included. But more detailed methods can hardly be indicated here. In fact the genius of the individual enquirer is here of much greater importance than the most specialised methods for the ascertainment of causes and effects.

The causal relation is far more complex in the organic than in the inorganic world and again more complex in human life and society than in the plant and animal world. According to the above statement *Hobbes'* definition of causality as the sum of all the conditions necessary to bring

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When the specialised sciences occasionally speak of generality and occasionally of general validity it should be noted that these two concepts do not coincide. An assertion is general when it concerns a group, a number of phenomena, e. g. the assertion that ferns are unisexual plants. This assertion likewise has general validity since it is objectively accepted by everybody. But an assertion may very well refer to a single phenomenon only and still be generally valid. That Mars has a reddish tinge, that Saturn is surrounded by rings are not general assertions; but they have general validity.

about a particular effect is indeed to the point. But the sum of these conditions is of a widely differing size and kind in the various specialised sciences; thus in chemistry for instance, the sum of the conditions is much more easily envisaged and simpler than in social science. The causes of a particular event or a lasting phenomenon in social life are often indeterminably numerous and are lost in a dim past. Hence social science is as a rule for practical reasons obliged to reckon with a short easily surveyable section of the immense complex of causes difficult to trace: note for instance in jurisprudence the concept of so-called juridical causality (i. e. effects which a man of ordinary intelligence can foresee, when he knows the causes).

3 PART

THE ETHICAL AND RELIGIOUS EVALUATIONS

CHAPTER 13

I

INDIVIDUAL ETHICS

Individual ethics must in the first instance be spiritual hygienics, spiritual mental science, and must therefore collaborate with medical science in a narrower sense and profit by its experiences. But next it must build on another science of experience, on psychology.

Here, as in many other fields, there has been too much specialising in modern science. Narrow-minded limits of scientific guild-spirit and petty self-assertion of one special science towards another have raised dividing walls which hinder the survey of the aggregate experience of mankind in various fields. A collaboration of the experiences of these various fields, however, would, as far as I can see, be able to create a sober ethic based firmly on practical life, and with it fixed principles for the guidance of the life of man, while the moral confusion and dissolution of the present day is, in my opinion, at variance with the experimental experience or knowledge which the various special sciences can give us in connection with the experiences of life gained by mankind for thousands of years.

Even within the borders of a single special science, *e. g.*, medical science, narrow professional guilds have arisen and led to widespread subdivisions of scientific work in a great number of specialised sciences; and this tendency persists, although warning voices have been heard against this specialism being pushed to extremes. When a specialist science treats, for instance, rheumatic complaints, skin diseases, diseases of the throat, nose and ear, it would be desirable in all the cases in which even a specialist treatment failed, if material could be collected to throw light upon the central problem, whether the local ailment might not have some deeper relation of causes with the entire general state of the whole organism, a certain general weakness, and whether this might possibly be due to a wrong way of living. The latest researches in vita-

mins and hormones have, as we know, begun to attack the dividing walls of the specialised scientific guilds. It is not, however, only an error in nutrition, in metabolism and the like, which in the deepest coherence of causes may lead to local ailments. There must also be a closer examination of the problem, whether a change in the manner of living itself, for instance, another division of the day's work, an alternation between mental and bodily work, a greater restraint in certain spheres and the like, might not produce improvement or cure, even of the local complaints, which could not be effected by any specialist treatment, whether of skin, throat, intestine or heart. There is altogether a large uncultivated field in the borderland between physiology, psychology, medical science and ethics, namely with regard to the central problem about the influence of the personal manner of living on various diseases, their rise and growth and their cure. The medical specialists, from their great experience in the various departments, would be able to contribute greatly to the elucidation of this vital problem, of so much importance to all mankind.

Altogether no medical science, be it never so general or never so specialised, ought in future to be separated from spiritual, mental science, from psychology and individual ethics. Medical science of the present day is already aware that nervous diseases, diseases of the heart and kidneys, diabetes and a great many other diseases, can be aggravated by purely mental ailments, by grief, brooding over trouble, remorse and the like. It is possible, though, that new, deeply probing experiences might be gained which might throw a light on the interrelations of causes, often very complicated, of a disease, by means of a research into the mental history of many patients. Prolonged grief over the dead of someone dear to the sufferer, repining over the failure of a life's purpose, remorse over a wasted life, is often the deepest cause, not only of nervous complaints but of bodily diseases, as these mental sufferings are in many cases able, little by little, to undermine the power of resistance of the physical organism, at last making it an easy prey to diseases in organs of vital importance. The physician ought therefore, not as at present casually here and there, but always at the same time aim at a cure of souls. To the purely medical diagnosis he ought to add a mental, psychologic-ethical diagnosis; and the physician ought to possess a considerable knowledge of psychology in conjunction with an ethical insight. In the same way, instead of a relatively useless grammatical and linguistic knowledge of Greek and Hebrew, and instead of a certain amount of exegesis and dogmatics, theologians ought to learn psychiatry, psycho-

therapy and psychology in order to be able to have the care of souls in a real sense for the great number of unhappy people whom they too meet on their way.

But next medical science and individual ethics cannot be separated from social ethics and from jurisprudence and other social science. A very large number of people suffer shipwreck under an unjust social order, under an unfortunate legal order of now one, now another condition of life. Under the liberalist order of law with its free competition and free right to dismissal or engagement, it is not only the incompetent, but often also the competent and conscientious people who are turned out of their daily means of livelihood. The lives of numerous people are ruined, their health undermined through these disasters for the individual, for which a wrong social order bears the blame. There must therefore not be any dividing walls of specialism between sciences like the science of medicine, individual ethics and jurisprudence. There ought to be a close collaboration between the experiences of these sciences. In these spheres the lawgiver must rely also on the experiences of the physician, the minister of religion, the advocate and others who have the care of souls.

1. HEALTH OF MIND AND BODY.

The experiences of medical science of the influence of certain stimulants on the organism, and of nutrion as a whole, already provide a firm basis of experience for a large part of individual ethics. Restraint in regard to stimulants such as opium, cocaine, alcohol and nicotine is necessary if the health of the organism is not to be broken down. That exaggerated enjoyment of food enfeebles health is evident, both from the experience of physicians and from the records of life insurance practice, which through their comprehensive statistics have verified greater mortality among persons of excessive weight. Sexual enjoyments are no exception to this fundamental law of restraint. That a certain, limited group of mental disorders, especially hysteria, may in several cases be caused by a repression of sexual urge during a certain period does not justify the immense generalisation of which a tendency that was for some time in fashion was guilty, when it maintained that unrestricted sexual life, as among primitive peoples, alone was healthy, and that restraint was unhealthy. On the contrary, it has been confirmed from numerous experiences that a restraint of this as well as of other urges, in conjunction with continual corporal or mental work provides

a good foundation for health and power of resistance against diseases. A control of the last-mentioned urge is, moreover, necessary in every civilisised community, for the very reason that the contrary would give rise to social disorder and misfortune for many people. The fate of the unmarried mothers and their children is a sufficient proof of the individual and social disasters caused by unrestrained urges of this kind.

2. EARNING CAPACITY. CHARACTER.

Finally there is a disregarded but immense and manysided material of experiences showing the value of restraint not only of this, but of all material urges, and the value of the industry which has taken their places or limited them. The professions, trades and industries, and legal practice, form one great series of real and weighty testimony that those qualities which we collectively call *character* in a qualitative sense, i. e., industry, frugality, thrift, moderation, competence in work, are the deepest causes of most social differences, both with regard to income and fortune, and that these controlling qualities altogether are those on which society rests. The social differences between human beings are in most cases not created by power over others, but by the power of men over themselves. This inner power or control, which is at the back of all these qualities of character, is the foundation of every civilised community. The theories about the free unfolding of life, sexually and otherwise, which the so-called realism in literature and philosophy has maintained in the nineteenth and twentieth centuries, have therefore no foundation in experience.

The reasons indicated, from the point of view of health, economy, livelihood and community, clearly show the superior value of the ethical way of living, in comparison with the unethical as regards character. Meanwhile this is shown, not only by the practical experiences of the present day. The experiences of the human race in historical times form one continued series of proofs of the victory of the moral qualities of character in the struggle of life. As an ideal way of living, it has sometimes been suggested that this is to be found among the primitive peoples vegetating in a life of unrestrained urges on the islands in the South Seas. These tribes, however, show no development, but a stagnation for thousands of years. It is not these people who have created civilisation; it is not they who have advanced mankind to that high stage in technics, in science, art and social organisation which the civilised peoples of the present day have reached. It is those tribes

who gained dominion over a small part of the earth, Europe, who in a struggle with the rude and cold climate in large areas of it displayed a hardihood, an industry, perseverance and restraint which not only made this small continent habitable and fertile, but created technics, science and a form of society so highly developed that it proved its superiority to other nations and later acquired dominion in America, Africa, Australia and large parts of Asia. The same can be said of the tribes which in Asia already in very early times produced a considerable spiritual culture (India and China). But the qualities of character which, taken altogether, have created the rich development in civilisation of the human race, industry, endurance, frugality and the like, and the creative gift employed by these qualities, have all only been attained through a corresponding repression and control of the physical urges in human nature.

As recent biology has shown, new types of life have come into existence in the development of plant and animal life, not merely as a result of external conditions and the gradual adaptation to them of the organisms, but because something new, a new form of life, arises at intervals from the very deepest source of life, from causes hitherto undiscovered, and is seen to get the mastery of external conditions both by adaptability and control of them, and to be superior to other forms of life. When man as a particular type of life, made his appearance in existence, during the development of the animal world on the earth, the new element that emerged in the organic development was that man, both literally and spiritually, rose in existence, instinctively chose the development of the higher organs, with the repression or control of the lower ones, won dominion over Nature and gradually brought entirely new values into the world, art, science and life in community. Human beings would never have attained to these values except through the development of a fourth value of civilisation, which I have included in the preceding under the word character. The human species did not reach its rich development of civilisation, which brought it ahead of the animals and gave it dominion over Nature, by a development of the organs of sex and digestion, but by a continual development of the highest organ, the brain, and its special organs of outlook on its environment, the eye and ear. In comparison with all animals man has the largest brain, when both its relative weight—in proportion to that of the body—and its absolute weight are taken into consideration, together with the largest number of and the most delicately developed convolutions of the brain. When man learned to walk erect and thus no longer needed his hands

to keep his body going quite mechanically, but had his hands free for all kinds of work in his natural surroundings, the intense collaboration began between the hands and brain, which already in the earliest times created implements and weapons, and which later in all its manifold ramifications gradually created all handicrafts, all cultivation of the soil, communication and later still, directly or indirectly, all technics, all art, science and social organisation. *Aristotle* searched for what was peculiar to man as distinguished from the animals, and remarked that we did not find this peculiarity in the life of the lower senses, for we had that in common with the animals, but in a spiritual activity, in the faculty of reason. That which next to Nature is peculiar to man is the life of reason, seeing that reason, properly speaking, *is* man. That which here in Aristotle's thought is right is this idea: man as a type of life in the development of the organisms is alone marked by the life of the soul and spirit, by the growth of the highest organs and their supplanting or control by the others.

Goethe says (in the poem: Die Geheimnisse):

> Wenn einen Menschen die Natur erhoben,
> Ist es kein Wunder, wenn ihm viel gelingt;
> Man muss in ihm die Macht des Schopfers loben,
> Der schwachen Thon zu solcher Ehre bringt;
> Doch wenn ein Mann von allen Lebensproben
> Die sauerste besteht, sich selbst bezwingt,
> Dann kann man ihn mit Freuden andern zeigen
> Und sagen: Das ist er, das ist sein eigen.

Man has succeeded in many things since he was raised up, by the advance in the development in remote antiquity, above his environment, and after he had, through sufferings, trials and labours, fought his way, little by little, to the type of life peculiar to him. He will succeed in much in the times to come if he can but keep to the spiritual line in the ways of life. But the power of Nature from the previous stage of life still hinders and hampers human beings on their way to higher forms of life.

The lines of Goethe above quoted may be translated as follows:

> When man has been by Nature raised
> It is no wonder that in much he does succeed
> In him must the Creator's might be praised,
> That weak clay to such an honour he will lead
> Yet when a man in all the trials of his life
> Wins in the bitterest, over himself prevails,
> One may with joy to others point him out
> And say: this is himself, this is his own.

3. PSYCHOLOGICAL NATURAL LAWS OF PLEASURE AND PAIN.

Meanwhile it is one thing that man must follow the path of liberation and self-control, both for the sake of his health, his efforts in gaining a livelihood, and in the struggle of all mankind for civilisation; but another question is: must not this path be followed at the expense of the joy of life, of happiness?

Ethics, as I began by pointing out, can in the first instance only deal with the necessary *conditions* for procuring happiness at all for mankind, that is, physical and mental health, the qualities of character needed for this and for life's struggles, and the securing of human beings against being injured by their fellows. On the other hand, when we enter upon the question of enjoyment or happiness we are, from a scientific point of view, on more uncertain ground, partly because the opinions of men on what enjoyment or happiness is, differ so much individually, and partly because a really scientific, psychological examination of the conditions for the creation of pleasure or happiness has not yet come into being; it is only in a few scattered fields that one finds contributions to this. The following is intended to be an attempt to find a way, purely objectively, to certain fundamental lines in such a science. Sometimes one must be content with indications, but often they are better guides than definite rules or ordinances.

As a new type of life man has irresistibly pushed through all hindrances, regardless of human enjoyment or happiness. But this new stage must have satisfied the needs of human life, and it is probable that the aggregate amount of feelings of pleasure during this development of the conquering types of life also in the last resort has surpassed the sufferings, difficulties and struggles. The intense feeling of pleasure or happiness after winning a fight and the troubles following on the result gained, when success has been won, often outweigh all earlier sufferings during the fights and troubles. This holds good both of the child-bearing mother, whose joy in the child far surpasses for her the travail she has endured, and of everyone the result of whose toil is a piece of work, no matter whether of the hand or brain. The most intense happiness seems often to arise on the background of the greatest suffering. Thus Nature understands how to entice human beings into the growth and development of the type of life.

Another strange phenomenon, however, asserts itself. Those pleasures that depend on the lower organs, the pleasures of taste and sex, are not

unalloyed happiness. Here that which I will call the first law of Nature holds good for the life of enjoyment, 1) that the duration of the enjoyment is in inverse ratio to its intensity. A vacuum therefore arises in this enjoyment complex. This vacuum can only be filled up by *other* kinds of enjoyments or other forms of enjoyment within the same complex. Hence arises what I will call the second law of Nature for the life of enjoyment, 2) the law of variety: the more kinds of enjoyment or sources of happiness a human being has at his disposal the greater is the possibility of lasting states of happiness. A certain variety can be obtained within the single kind of enjoyment, for instance in pleasures of taste or sex or complexes of both; but feelings of pleasure, by refining within this complex, quickly diminish in strength and leave behind them a vacuum greatly tinged with disinclination, quite apart from its injury to health. So other sources of happiness must be drawn into the process of variation, and the only ones to be found are the enjoyments connected with the higher organs, the eye, the ear, the brain. Two things may be remarked of these, namely that the development of the higher organs not only makes them the conquering ones in the battle of life, vital as they are for health and the conquest of Nature, but makes them the sources of intensive enjoyments or happiness, and in regard to the sum of pleasure and pain they seem to be superior to the pleasures attached to the lower organs. Plato remarks that feelings of pleasure caused by beautiful colours and figures, by beautiful sounds and scents, and by cognition, are pure feelings of pleasure, in which no dislike or pain is concealed. It will be seen that Plato is thinking of all the joys to be found in art and science, and to these we can add the great number of joys to be found in every profound absorption in mental or physical work, in every creative achievement, and the purely spiritual joys in fellowship between people who are spiritually or mentally akin.

The peculiarity about the joys and pleasures which can be included in these spheres and which may briefly be called the spiritual ones, is that the possibilities of variation are exceedingly great, and that the psychical vacua can consequently be restricted in a correspondingly high degree, and in so much a greater degree the more the person in question has cultivated his taste for these spiritual and mental sources of happiness. In contemplating the sphere of art alone, all pictorial art and music, it will be seen that the possibilities of variation are almost unlimited. Possibly, though, the following law can be laid down for all the higher spheers together, in relation to the other spheres: 3) *that* in the pleasures or joys connected with the brain and the higher organs

of sense, especially the eye and ear, the intensity of the feeling of pleasure is not, as in the case of the pleasures connected with the lower organs, proportionate to the physical influence on the bodily organism, the physical exertions in the use of the higher organs being very small, and *that* the possibilities of variation both in this and in the richness of development of various impressions in the higher organs being far greater than in the material pleasures, the psychical vacua are much rarer than in the latter. It follows from this that even the strongest and most richly varied intellectual and spiritual joys are as a rule not gained through loss or impairment of health, through weakening powers in the difficulties of life and the consequent disappointments of aims that have not been realised. This is undoubtedly what Plato had in mind when, as mentioned before, he points out that no suffering or pain is concealed in the pleasures connected with the higher organs, such as is often the case with those of the lower ones. Human joys or forms of happiness thus seem to be free from suffering in the same degree that they are free from desire. There is no physical desire in art, in understanding and in spiritual sympathy.

The great religions, besides their outlook on the world, contain a deep experience and insight into human life itself. The ideas of Christianity and Buddhism differ about the hereafter, but in their view of the conditions of the life of man they have arrived at the same result; and it gains particular weight because they have reached it from very different reasons. Both regard material desire as the great hindrance to the happiness of mankind, to the attaiment of the highest aims. Whether, like Christianity, one sees the highest aim in a state of everlasting beatitude, or, like Buddhism, in that state, difficult to define, called Nirvana, in both religions the deliverance of the human race from desire is the condition for reaching this highest aim. Desire leaves suffering in its train. The desire of material pleasures leads continually to passions, emptiness, disappointments, hatred of other human beings and encroachments upon them, upon their lives and possessions. Only a deliverance from all physical desire can set mankind free from these scourges and lead them up to the highest state. Apart from the different expressions of the religious views and their differing reasons, the deepest religions have the same fundamental idea on the interior conduct of the life of man.

Every man will, after a certain lapse of time, be able to settle up with himself whether he has got anything out of this period of his life. When such a settling-up takes place a man feels intensely that he has, as it

were, a sort of responsibility towards the best in himself for every moment he has lived. It is said in the old prayer: So teach us to number our days, that we may apply our hearts unto wisdom. As the foregoing has shown, one does not get anything out of the moments of life by rushing from pleasure to pleasure, regardless of what kind they are. In many cases a choice is required, according to certain psychical laws. But the next thing required is the opposite of haste, of spiritual scattering and rushing from one thing to another. Whether it be a question in the moments of life: of work, of the joy to be found in art or in something else, the soul must have quiet and time to dwell in contemplation, in an absorption that we usually call concentration.

Concentration or absorption must be understood as a recollection within a certain space of time of all the powers of the soul in a definitely limited psychical sphere, its ideas and feelings. So far as I can see, a law can be found for this concentration, which I will express in this way: the more a human being succeeds in gathering all the powers of the soul about such a definitely limited area, the greater will be the conditions for the experiences during this space of time being felt as one of intense happiness. For many reasons the circumstances of the present day are not favourable for this concentration of the soul. Concentration presupposes a certain solitude, a certain peace, in which all disturbing impressions from the surrounding world are excluded. The rapidly increasing density of the population, however, during the last hundred and fifty years, the more and more intense communication and intercourse between people by means of an increasing technical advance (railways, motor-cars, aeroplanes, telephones, radio, etc.) make a deep contemplation more and more difficult for mankind.

In the formulation of the *law of concentration* mentioned there is emphatically only this, that concentration is *one condition* for feeling an intense satisfaction or happiness, but it is not the only condition. The law of concentration must be united with the other psycho-ethical laws which I have indicated above, if both the relatively most lasting and most intense satisfaction or happiness is to be reached. Hence it follows that it is not a matter of indifference on *what* one is concentrated. A concentration for a lengthy period on material enjoyments has not the same effects as the concentration on intensive physical or mental work. This latter concentration is of greater value than the former, both from the point of view of a livelihood and of health; and as a result of the law about the effects of variation and the psychical vacuum on the areas of the various mental and physical organs, the absorption in work,

quite apart from the satisfaction of health and of earning a living, produces relatively the strongest and most lasting feelings of pleasure. The law of concentration, then, must as an ethical law be more accurately described as the law of the *qualititative concentrations*. As such may be mentioned, besides the physical and mental work, the states marked by pleasure attached to the beauty in the world of art and Nature and the society of congenial souls.

Besides the concentration to be found in absorption in work and in its joys, there is a third kind of concentration, which may be called the *concentration of speech and action*, and which, from the experiences of mankind for thousands of years has proved to be inevitably necessary for the avoidance of disasters in human life and for the progress of the latter. This concentration consists in people weighing the effects of their words and actions before they speak or act. This law, which might be called the second law of concentration, is of the greatest significance in the relations between people, especially in matters of law. The doctrines of jurisprudence on illegal actions and its doctrines on the binding force of promises, contracts, laws and other declarations of the will, are both derived from this second law of concentration. But in individual ethics too this law strongly asserts itself. For it is of the greatest importance to the individual person's own welfare, in every situation in life requiring action or speech, to consider carefully the possibilities of beneficial or harmful effects of a single situation before bringing a word or an action into the open. Many people have in the course of time forfeited their happiness by a thoughtless word or an unconsidered action. In daily life it is not only in business relations or political affairs that man, for his own sake and for that of others, must carefully weigh the consequences of his words and actions. Even in the most personal, most ideal relations between people one must weigh one's words as well as one's actions on the scales of thought, partly in order to find the most adequate expressions for what one feels and thinks, and partly in order to keep back words and actions that may hurt.

The intellectual absorption that must go on in these fields of speech and action is a practical absorption in which the imagination tries to evoke before consciousness all the aspects contained in the concrete situation, and all the effects a word or action can be imagined to have in this particular situation, in order thereby to obtain a survey over its various arguments for and against. The practical man of genius, with all the powers of his soul or his faculty af concentration, will probe deep down to all the actual aspects of the situation and its arguments, often many,

for and against, and will not give up until he has uncovered them all, and he therefore leaves the least possible to chance.

The two laws of concentration: the law of interior concentration, absorption in work, in art, Nature and a life with congenial spirits, and the outward law of concentration, the consideration of the effects of words and actions, are thus united in showing man his responsibility for every moment of his life. He who does not obey the laws of concentration will not make anything of his life, he will miss its richest moments and will often suffer shipwreck in his exterior life. The two laws of concentration may briefly be expressed thus; the results in the life of the individual are directly proportionate to the strength of mental concentration on the spiritual values and to the weighing of the consequences of speech and action.

In the present state of affairs man's conduct of his inner life is as a rule not discussed. It is like an unknown country in which feelings and moods, sense impressions and passions come and go, mostly at haphazard. No one guides human beings in this wilderness. The old rules for morality are scoffed at according to the prevailing fashion as being antiquated, but nothing else is put in their place. People naturally do not confide these spiritual matters to each other and there is no spiritual physician to whom they can go. And yet this inner life is the most important of all, for it is here that human destinies are decided, and that human beings either reach the greatest satisfaction or plunge into the deepest misfortune. It is therefore a vital necessity that ethics should be established as a planning, experimental science of experience, such as I have attempted above. From a number of cases drawn from real life I shall try below to throw a light upon the conditions of human destinies and thus give a first attempt at ethical clinical treatment. Next one must try, on the basis of the material of experience, whether it is possible to find psychological, ethical laws. It is only when such laws are founded on realities, on facts, that they can become guidance for men and take the place of the inherited rules of morality. The question, then, is whether such psychological laws can be found.

It seems to be established through the foregoing examination that a complex can really be found of psychological, experimentally ethical laws: the law of 1) the relation between the intensity and duration of the feeling of pleasure, 2) the psychical vacua and the law of variation, 3) the law of the different effects of variation in the spheres of the higher

and lower organs, as well as on the duration and intensity of the feelings of pleasure themselves and on the general state of health, and finally 4) the law of concentration.

Those who, at variance with the psycho-ethical laws pointed out here, decay, deteriorate, either because of lack of work or owing to an unrestrained use of material enjoyments, experience not only the clearly evident effects, unfortunate both as regards health and livelihood; but if the abuse goes on for a lifetime, one of the most intense and at the same time undermining feelings of pain will as a rule at last ensue, that is, the suffering of not having achieved in life that which, with their gifts and abilities, they might have achieved. Aristotle says that great happiness consists in developing the capacity peculiar to one's nature, the perfecting of one's abilities. The reason for this, as I have tried to show above, is that both biologically for the human race as a whole and for the individual, the control of the material nature can alone create full liberty for the development of man's particular gifts, the spiritual ones,

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On the other hand, nothing in the experiences discovered indicates that a complete suppression of the inferior pleaures (asceticism) would be right, from the point of view of health, profession or work in general, or as affecting the soul. These pleasures, simply under the laws of variation, are relatively justifiable for many people, when it is understood that as mentioned, they are subordinated to the whole and to the choice preferred according to the psychological laws indicated above. At the same time there is nothing to indicate that there would be injurious effects to health if a human being, during intense mental or physical work, or during a life spent in this, were to abstain altogether from the inferior pleasures, and even with regard to food, were to eat only in order to live, and not live in order to eat. On the contrary, it is a matter of experience that during periods when men have to use their abilities to the utmost, whether in sports, in their trade or profession, or spiritually, a consistent asceticism is necessary.

Moreover, it must be emphasised here that the purely negative abstinence or renunciation as such is a poor guide ethically. As a consequence of the psychical vacua abstinence or renunciation can only be justified if another feeling of pleasure can take the place of that which has been renounced, as in the case newly mentioned, where happiness in intensive mental or physical work supplants the inferior feelings of pleasure. Agitators against alcoholism therefore make a psychological mistake when preaching the negative alone, abstinence from this particular pleasure, when they can not at the same time point out and inspire their listeners with a taste for certain other pleasures of a higher kind, besides giving them the satisfaction of better health. In all science of teaching this positive task of training the mind to a taste for the higher kinds of pleasures, and a partial substitution of the lower ones, must go hand in hand with the demonstration of the unfortunate effects on health and character of an unrestrained use of the latter.

for dominion over the world and for the attainment of the relatively most lasting and forceful joys.

Next, however, there is another intense suffering which is a consequence of a lack of subordinating or restraining the material urges to the total demands of health or work. He who has lost the mastery over a material inclination, whether it consist in alcohol, sexual or other intoxication, will suffer, little by little, from a feeling of psychical emptiness, the intensity of which increases in direct proportion to the number and strength of the intoxications. Along with this purely physical and nervous trouble and closely allied to it there is the mental trouble just mentioned in feeling that one's gifts and abilities are decaying, rusting, and that one's life is ebbing away like a stream flowing into sand.

Finally there is a third experience of lack of mastery over oneself. It can be expressed in the following law: the more one is lacking in this mastery, the less one is able to overcome troubles that come from outside. Buddhism is particularly aware of this. In every man's life misfortunes or troubles for which he is not to blame will come, illness, old age and death, of those to whom he is most closely related, relatives or friends, or to himself. The only hope of limiting or softening these troubles lies in a psychically active adjustment. It is a well-known experience in life that work, physical or mental, is the best friend in grief. Altogether he who passively receives the unavoidable misfortunes and troubles of life, and still more he in whom passivity during the same period is joined to a materialistic tendency or passion, will be a victim with no power of resistance to misfortunes or troubles coming from outside. Lack of control over pleasure produces a corresponding lack of control over suffering. The groups of disinclination mentioned above, which are a consequence of failing mastery over materialistic inclinations, show altogether that there is a profound truth in Buddha's experience of life, that desire brings suffering in its train.

Old sayings acquire a new value in the light of these experiences. The old words penitence and conscience are used both in respect of man's deep injury to himself and his deep injury to others. These strong feelings of responsibility to one's own life and the life of others are right and sound and must not be effaced by a superficial and materialistic age. Penitence and conscience contain the instinctively right feeling of having transgressed against the laws of life—not only the laws of an inherited morality or religion—but the natural laws of the soul, which, as indicated above, are the conditions for obtaining

human happiness. But for the rest, so far as I can see, it will be seen as experimental ethics advance, that often the instinctively right experiences of the human race for thousands of years will be found behind the inherited rules of morality, law and religion. A great renaissance may safely be predicted for many of the old virtues, held in contempt by our own bewildered age. The sensible physician or guardian of souls, whether he be medical or legal, the right future judge or the best equipped future theologian, will tell those who are tormented by remorse and conscience, that is, by the torment of a wasted life, that even this suffering is right and wholesome and an absolute condition for lasting happiness in the future, but that it is hardly ever altogether too late in life, that as a rule a new life can be built up when suffering has chastened one for it, and that penitence and conscience must have time to do their work, but that on the other hand they must not embitter one's life, and that after a certain time they must give place to new strong feelings of satisfaction when life has been readjusted according to the new psychical laws, so that the joy of absorption in work and of the development of one's natural gifts, hitherto neglected, will gradually, together with the companionship of congenial minds and the richly varied world of art, take the place of suffering.

In order to counteract the amount of suffering in human life and to obtain a share in the great spiritual joys, man must often at particular moments of life make a choice between feelings and inclinations. He must often refuse inclination and accept suffering. He who is able to do this obeys a *line* or a *law* in his life. The line or law in a man's life is his character. To an essential degree his health, his energy in work, his happiness depend on it. There is a great truth in Kant's opinion, that only through self-imposed laws, only through his own submission to the absolute moral law, can he gain *freedom*. Here it is undoubtedly Kant's thought that the individual man's own submission to the absolute moral law delivers the powers of his soul and spirit from the bonds of the passions. The rule, the law, the submission of particular moments in life to a definite line thus arises out of life itself.

In regard to psychical phenomena language is rather lacking in adequate expressions, which is quite natural, as it was the external world and its objects that first attracted man's attention and made language particularly active. Words like inclination, the feeling of pleasure or happiness and their opposites, pain, misfortunes and the like, provide only imperfect expressions for the sphere of ethics. In this must

also be included, as I have pointed out in an earlier place, the satisfaction of the needs essential to the preservation of life, whether or not this satisfaction be attended with pleasure or pain. Next, in the higher spiritual development of man, life must often be steered by a course according to the psychical laws indicated above, and following a definite line or rule, regardless of whether at the moment it involves pleasure or displeasure. The word satisfaction therefore suggests itself as a better, more comprehensive word than pleasure or happiness. The psychical vacua are the innermost causes of man, as a total result of a period or a life, not feeling a satisfaction, a spiritual richness. This satisfaction can be felt, even if many single moments in the period were displeasure or suffering; and conversely, this deep satisfaction may be absent, even if the period contained many moments of enjoyment or pleasure. The vacuum, the absent satisfaction is felt in this way, that life, regardless of its pleasures, has escaped one, that one's life has gone by, without one having *lived.*

Life can thus mean two things: 1. The usual, vegetating life, in which one lives only to satisfy the material needs and 2. Moments of intense happiness in work, in beauty or in love. This last-named form of life, according to which it may justly be said that one has *lived,* I will denote as life to the second power. Beneath the clock on the wall of an old-fashioned business house in a country town are inscribed the words: Tempus fugit. Time flies. The strange feeling later, that during a certain period one has not lived, that time has escaped from one, is due to one's existence during this period having been marked by a state of inertia or a materialistic bent, and not being absorbed in the life of concentration, of life to the second power, which only arises either through work, even during sufferings and troubles, or through great harmonious experiences of the world of beauty in art or nature, or through a third influence which it has not been possible hitherto to define.

For there is still an experience which is, psychologically, an unknown country, but which, so far as I can see, holds the key to the understanding of a problem which may become decisive for the future of mankind.

The material pleasures involve not only physiological influences, but react also on the nervous system. This circumstance, however, has been examined but very little. The new experimental ethics of experience, which I have tried above to found on reasons, must take up the problem in conjunction with neurology. Owing to the highly developed nervous

system of human beings, the act of taste and sex is in them of another kind of intensity of pleasure than in animals. But the desire to keep hold of or repeat this intensity leads humans to extreme processes of variation and refining. There is much to indicate that such an extreme process of variation and refining involves not only a physical but a considerable nervous strain, and if long continued, a weakening. It is known from historical experience that nations and classes of people who during a certain period reached a high state of culture, were not able to maintain the height of their spiritual culture, but gradually fell into decay and at last perished and disappeared altogether; and it is also known that the same nations or classes of people at the height of their culture gave themselves up to extreme processes of variation and refining in the materialistic spheres, after which the period of decay began. It is difficult, however, to find a full and scientific explanation of the immediate causes of this decay. No doubt other causes also contributed to this process of decay. Probably, both during the decay of the old babylonian, egyptian and roman community, and entire complex of causes asserted itself, for instance, in a wrong organisation of the community (the destruction of the independent peasantry and other middle classes, and the too great centralisation of government), enfeebling diseases before which men at that time were helpless (e. g., malaria) and several others. On the other hand it would be a mistake to ignore that *among* the causes the processes of variation and refining, carried to extremes in the sphere of material pleasures, would also contribute their effect, such as related in historical and to some extent contemporaneous accounts. The exceedingly generalising conclusions drawn by Oswald Spengler (in his book: Der Untergang des Abendlandes) from the fate of these nations in the remote past to the fate of nations now living (especially European) are therefore unjustified. At the present day we have essentially greater possibilities of a better organisation of society than the societies of ancient times (with their peculiar capitalism on a great scale and slavery). Next, through modern medical science we are far better able to combat the diseases that enfeeble the race than the civilised societies of antiquity. On the other hand, so far as I can see, the difficulty and danger for civilised nations now living lies in the moral, spiritual causes.

There are signs from many different directions of a general ethical confusion and dissolution at the present day, among both the so-called higher and the so-called lower classes of the population. Men have become as it were morally uncertain. Various tendencies try, without

any real basis of experience, to inculcate in mankind that a life of unchecked urges is the most natural, and the opposite is unhealthy etc. But from beginning to end the fact that hitherto it has not been possible to give a scientific reason for ethics is of the strongest effect in wide circles, not least the intellectual ones, whence the influence is spread still further. For if this be true then, from a scientific point of view, the road is open to all kinds of living, even the most unrestrained. If the spiritual direction at the heart of society takes up this attitude the effects on the population will be unlimited.

The preceding examination of the theory of knowledge has presumably, step by step, inevitably and consistently led at last to the result *that* all science, the fundamental presumptions on which all science rests, must ultimately seek its reason for existence where the reason for ethics is to be found, and *that* ethics itself is a science, because it belongs to that group of sciences which above have been called the experimental, evaluating sciences of experience. After that the fundamental lines in ethics can bedrawn, as I have attempted to do above, on the basis of experiences connected with biology, health, earning capacity, history or other practical experiences of the conditions affecting human character and social affairs. Given these fundamental lines there is a possibility that the ethical confusion and dissolution of the present day may cease and make way for a planned guidance of the human race founded on experimental experience about the paramount importance of the development of the qualities of character that sustain society and the life of the individual, and that presumably provide the surest protection against the decay of the nations. With a continually improving organisation of society, a continually improving combating of diseases, a greater and greater dominion over Nature, but first and last with an ever greater dominion over the powers of Nature in man himself, it would seem possible for the civilised communities of the present day to emancipate themselves and rise above the fate of the old civilized societies, their decay and death. To society of the present day and to the individual may be applied the saying of Pythagoras: By the side of fate the will sits enthroned like a powerful mistress.

The foregoing, so far as I can see, has shown the remarkable ethical law, that while the process of variation and the process of refining can be continued to an unlimited extent in the pleasures or joys connected with the higher organs, eye, ear and brain, in the world of art and knowledge, without any harm but on the contrary to the benefit of the health

and life of mankind, the processes of variation and refining in the pleasures of the lower organs seem only, if continued, to lead to an increasingly stronger physical and nervous strain, to a weakening appreciation of the most intense intellectual and spiritual joys which man has created as a higher type of life. As a result of a highly developed nervous system, particularly in people of culture, the pleasures of taste and sex reach an extraordinarily high intensity; the word that best expresses this being perhaps sensuous rapture in all its forms. But as this phenomenon of refinement, rapture, reaches its highest intensity in the very people whose nervous system is most highly developed, it will be understood why the most highly developed are the very ones who can fall deepest. This applies to civilised nations and individuals in the past as well as in the present.

At this stage of the highest and lowest point a remarkable phenomenon appears, and in the spiritually most highly developed nations and individuals it may take the place of the sensuous rapture, which they can feel as even a far more intense happiness than the latter. This is because something new breaks out in the most highly developed and perhaps one might call it a sublimation of the lower process of the senses, an elevation of it to a higher plane, compared with which even the most intense rapture or intoxication of the nervous system is only slight. The sublimation may be said to consist to a certain degree in the lower sense being set free from desire. In the sexual relation the process is known under the term of falling in love. At this stage a human being is raised, as it were, into a higher world, in which mere sight or admiration at a distance is filled with the most intense happiness, in which the thought of the sexual act is not present to consciousness, and later in life this period will always stand out, as generally known, with the radiance of a far more intense feeling of happiness than can ever be equalled by any later material acts. It is difficult to find a word that can adequately express this psychical process, which spiritualises, or, if you like, exalts a material process of the senses. The word: uplifting might perhaps be suitable. The spiritualising processes, in contrast to the processes of variation and refining on the state of the material senses, have no injurious by-effects, but seem rather, as all intense higher happiness, to increase physical and nervous power.

The present times, not only because of ethical confusion and dissolution, but also because of the vulgar forms of social intercourse, are not favourable to spiritualising phenomena. In sexual relations the

present times have lost the values which an earlier period, that of romanticism, possessed in what one might perhaps call the poetry of distance. One might venture to say, however, that the same holds good of the modern life of pleasure as a whole, and that the spiritualising processes in many spheres are on the point of disappearing, that the value of restraint is not appreciated, that the psychical vacua therefore become numerous and are only interrupted by the process of variation and refining in the sphere of the material senses that may be the omen of an approaching decay. What the times need is not sensuous rapture but uplifting, if the human race is to advance on its way to higher forms of life. The destiny of the human race itself lies hidden in the choice between rapture and uplifting.

ATTEMPTS AT AN EXPERIMENTAL CLINICAL ETHIC

As the abstract discussion about various trends of thought, the ethics of duty, utilitarianism and the like, have not been able at all to produce a really scientific ethic, an important task has been neglected, and it is one which must now above all be fulfilled where a new science has to be founded, ethics as experimental, clinical; that is the task of collecting and carrying on a research into the deepest human experiences of life and arranging them in a system. These experiences must be looked for in the most different spheres, from the experience of physicians and lawyers to the wisdom about life of religions, from history, with its records of the fate of nations and of men to the works of the great poets with their profound insight into human passions, conflicts and shipwrecks.

The experience of both physicians and lawyers tend to show how mental troubles, e. g., anxiety about the means of living, disappointments in lawsuits, brooding over wasted chances, grief at the death of loved ones, are able to cause serious bodily diseases. Undeserved anxiety about the means of living can be ascribed to a faulty social organisation, which will be dealt with later. In regard to the other disappointments mentioned, the clinical ethician must try to lead the thoughts of the

sufferer in other directions, showing him, especially by examples, how life is hardly ever wasted, even though parts of it in the past may be, that one may begin a new life — when, as the poet Brorson[1]) says, one begins *now*, at *this moment* — and especially by guiding the sufferer to the everlasting source of renewal, work, showing him, as an old Indian saying has it, that "there is no friend like work; he who works will not sink into despair."

Another set of experiences, as above mentioned, seems to indicate that even local bodily complaints may often be connected with a certain weakness, not only in the physical, but also in the general mental state. The mode of life may have some share in these complaints. Exceedingly great difficulties are involved in this problem, because if one is to have any hope at all of even fairly definite results, one must work with a very large number of experimental individuals, and then over a relatively long period of time. But if specialists in all the various spheres, besides directing their attention to the local ailment and its special treatment would always at the same time direct their attention to the general state and whole personal manner of life of the patients, and would periodically feel their way with such alterations in it as would naturally occur to them, a comprehensive material of experience in the sphere of all the specialist sciences would gradually be gained for the elucidation of this central physiological and medical problem about the influence of the personal mode of life on local complaints, and on various diseases altogether, a problem which is of the greatest ethical importance to mankind.

In a great number of cases it would be possible to trace back depression and a weakening in the state of health to a great lack of control of physical urges. But it must not on that account be overlooked that, conversely, a too great control or inhibition of physical urges may in a few cases be the cause of morbid conditions. This, however, can only be a question of comparatively rare cases, as restraint, normally, is healthy. Meanwhile the number and importance of the injurious cases of inhibition have in the most recent times been greatly exaggerated.

It is, as known, *Sigmund Freud* and his school who have proposed a

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[1]) Brorson, Hans Adolf (1694—1764). Hymn writer. Was a Lutheran minister in Jutland, where he succeeded to the living held by his father and grandfather before him. Distinguished among other Danish hymn writers for his great depth of feeling and his pondering of the transforming power of the Cross over the soul.

theory about the inhibition of certain groups of ideas and feelings—complexes—especially of a sexual kind, which hinders their free growth and development, and which is thereby supposed to be the cause of neurotic, especially hysterical complaints. As curative treatment, so-called psychoanalysis is applied: an examination, especially by means of questioning the patient, of his memories of earlier experiences of this kind, the interpretation of his dreams as the expression of such inhibited complexes, etc. Freud has undoubtedly deserved merit by drawing attention to these phenomena and the treatment mentioned; but Freud has exaggerated their importance and unwarrantably generalised them far beyond the very limited area which can with certainty be covered by his experiences.

The great religions contain profound experiences about the life of man, a comprehensive knowledge of mankind and a great insight into the right ways of human conduct. This is particularly true of the doctrines of Christ. It applies also to Buddhism, however, and as the latter is less known it will be dealt with here in more detail.

Buddha regarded human life as consisting only in suffering. Three things, all bearing witness to perishing, had made the deepest impression on Buddha: disease, old age and death. According to tradition Buddha was in his youth a prince, who lived happily in his palace with wife and child; and his father was carefully solicitous that no discordant, disturbing impression from the world outside the palace walls should penetrate to the prince. Nevertheless it happened one day that Buddha on an excursion saw a bent, trembling, aged man, another day a sick person writhing in pain, and later one day a dead body. When he realised that he was himself also subject to this corruption, disease, old age and death, he left his palace and his family and went out into solitude. His father, tried to keep him back, but the prince said: "If you will grant me four things I will stay here always and will never leave you: what I wish is: never to grow old, but to live in everlasting youth and beauty; never to be struck down by disease and to live forever without having to yield to death." The king was not able to fulfil his wishes; then the prince was fain to be content with but one thing, that when he had one day to die, that he was not to be born again to a new existence. But neither could his father grant him this wish, and so he allowed his son to set forth, to the salvation of the world.

As will be seen, it is the deep pain that nothing in the life of man is everlasting and unchangeable, that all happiness passes away, which is the motive for Buddha to renounce all desire and thereby to abandon all the painful existence of man. The sufferings in life, however, are not exhausted by the three great ones mentioned, disease, old age and death. To part from what is dear to one is suffering, to be united to that which is not dear, is suffering, not to obtain what one desires is suffering.

As it is desire that binds us to this existence, all desire, all pleasure of the senses must be given up. As the lamp goes out for want of nourishment when the old oil is used up and one does not replenish it with new oil, so does desire fade away in him who keeps a firm hold of the knowledge that everything that binds one to existence is perishable, and when desire fades away, it is followed by the dwindling of effort, existence, birth, old age and death. Desire and longing are powerless in the face of disease, old age and death and make one moan despairingly over these misfortunes.

According to Buddha a deep law of responsibility runs through the whole existence, in so far as all our thoughts, feelings and actions entail consequences tending to entangle us in existence or to loosen us from it. He who is wise will therefore carefully weigh all his thoughts, feelings and actions.

In the sacred books of Buddhism there are a number of commandments, and several ways for living thoroughly in the spirit of Buddha are recommended, in order to reach the goal, that of suppressing the desire of life. That these commandments and ways lead, also in purely human relations, to conduct which is ethically right towards one's fellow men is in itself of minor importance, in comparison with the great aim: deliverance from existence in the form in which we know it. There are five commandments: not to take anyone's life; not to take that which is not given; not to lie; not to live unchastely; not to drink intoxicating drinks. As will be noticed two of these commandments are concerned directly with lower desires. But from these, and from desire altogether of material pleasures follow those acts of hatred of others and injury of others, against which the other commandments are directed. Taken altogether the desire of the senses begets passion, hostility, hatred and laying hands on the life and property of others. One must therefore renounce, give up enmity and cruelty, lying, slander, tale-bearing, murder, stealing and debauchery.

If we can deliver ourselves from all desire we shall be saved from

suffering. The way to the end of suffering is the holy eightfold way: right outlook, right resolve, right speech, right action, right living, right endeavour, right reflection and right introspection.

The more a human being succeeds in delivering himself from the desire that binds, the better will be his next existence; and if he reaches perfection in that respect he will be delivered from every existence in the sense in which we usually understand the word: existence; he will pass over to Nirvana. In itself Nirvana cannot be defined at all, for in whatever way we would try to define it, we should have to make use of ordinary human conceptions about life and existence and they cannot be applied to it at all. It is not strange, therefore, that many different ideas about Nirvana are to be found among Buddha's adherents, from that of a land of bliss to a purely spiritual state, in which craving, anger and infatuation do not exist, a state of the highest happiness, peace and rest, and finally to purely negative ideas. It will be seen that Buddha does not make any difference between the various senses. They all seem to bind man to life. In all his gloomy view of life he does not seem to have perceived that there were senses which were free of desire and which therefore did not involve man in the usual existence of passion, misery, hate, slander, stealing, murder and the like. The five commandments show, however, that Buddhism after all practically has the lower senses in view, when it advises against desire and all its consequent sufferings and misfortunes for man. Nor has Buddhism in its practice given up the world of art. To this there is sufficient testimony in the great number of magnificent and beautiful temples to the honour of Buddha, which from ancient times and up to the present have been erected in Buddhistic countries. Moreover, there is the problem about understanding and its joys. According to Buddha right understanding can even in this life lead the sage into a state of Nirvana when understanding leads him to renounce desire.

Next, as pointed out above, there is an abundant material of experience to be found scattered here and there in many different places for experimental ethics in the historical research into the destiny of nations or individuals, in biographies, in the works of great thinkers and poets, which often give expression to deep experiences of life.

Since the days of Plato and Aristotle many thinkers have continued the method of ethical reasoning of these philosophers. Their distinguish-

ing between higher and lower pleasures was deepened under the influence of Christianity, but during the Renaissance, when the knowledge of Greek philosophy was revived, this distinction was presented on an entirely human basis. It is set up again and again by philosophers, but now, as in antiquity, without any deeper reasons for it in details. They keep to certain general considerations. As I have tried to show above, the distinction can only be maintained if definite, real grounds can be pointed out, also in regard to health, livelihood, neurophysiology and psychology in support of it. The observations of the ancient thinkers, however, are of value because they are the instinctive expression of right experiences.

It was *Giovanni Pico* (of the fifteenth century) who set forth the statement mentioned earlier, against mediæval mysticism: the destiny of man is not to be read in the stars but in his character. He continues: the soul is the *daimon* of man. Man can sink to the level of the beast, but he can from choice and of his own free will raise himself to the divine. True wisdom consists in the shaping of ideal humanity. In later philosophers too we encounter the distinction between the lower and higher joys. *Spinoza*, whose "Ethica" contains, beside his well-known view of the world, several contributions to the psychology of the feelings and passions, emphasises as the highest joy that of the activity of our spirit; he says that only this joy can win for us that power over the passions that will gain peace, both for the individual and for society. Spinoza, like Buddha, understands that bodily desire and suffering are closely joined together. *Locke* points out that we often have the choice between a feeling of pleasure now and a future feeling of pleasure, and that we often err, in preferring the present one to that of the future, as the former, because it is present, seems far greater to us than the remote, future one. *Leibniz* says: "The less impluse is led by reason, the more will it seek the pleasure of the moment and not happiness, that is, lasting joy." Montaigne says: "If the pain in the head came before the intoxication, we would be wary of drinking too much, but in order to deceive us voluptuousness always goes before and hides its consequences."

Historical science contains an abundant material for the elucidation of the question about the influence of the passions and the material pleasures on the destiny both of individuals and nations; and sometimes the observations of the great leading figures have been preserved, concerning the experiences of their lives on this subject. All this immense material of history ought to be gone through some time for the benefit

of an experimental, clinical ethic. Here will be given only cases as examples illustrating the importance of this entirely uncultivated material of experience.

The remark of Montaigne, quoted above, is concerned with the very widespread addictedness to drinking prevalent in his time. A slightly later contemporary of his, Henry IV, has touched upon another, also widespread material propensity among the higher classes, that is, gluttony. In the many experiences of his life Henry IV took note also of this phenomenon and its effects and says, *inter alia:* "Great eaters and heavy sleepers will never be able to accomplish great things. A spirit that is buried in a lump of flesh by sleep and a soft manner of living will never be able to get noble or generous impulses." A queen living at the same time furnishes one of the best known examples of a human destiny which suffered shipwreck from intoxication of another kind than that mentioned by Montaigne and Henry IV. Otherwise, however, it belongs to the psychical phenomena, the interrelations of causes of which it is difficult to trace in history. Martin Hume, in his book on Queen Mary Stuart, gives a weighty psychological contribution to the pathology of sexual passion and weak character. This author sums up the picture of Mary Stuart's fate in the following lines: "Well it would have been for her (Mary Stuart) and her cause, if from the first she had been able to recognise the disadvantages under which she laboured, in competing with Elizabeth in the employment of her own disposal in marriage as an instrument of her policy. She was warm-hearted and trustful; Elizabeth was cold and suspicious. Elizabeth had always by her side the judicious, clear-sighted Cecil to save her from herself in her hours of weakness. Mary was surrounded by the most self-seeking set of traitors and scoundrels the world ever saw, and both the men she thought she loved were utterly unworthy of her. Mary in most respects posseded a much finer and nobler nature than Elizabeth; she was a woman of higher courage, of greater conviction, more generous, magnanimous and confiding, and apart from her incomparable greater beauty and fascination, possessed mental endowments fully equal if not superior to those of the English queen. But whilst the caution and love of mastery of the latter always at the critical moment saved her from weakness, Mary Stuart possessed no such safeguards, and was periodically swept away, helplessly and irremediably, by the irresistible rush of her sexual passion. This passion led her through deplorable errors and follies ever downward from freedom to lifelong imprisonment, from happiness to misery, from a throne to a scaffold."

Besides history, the works of the great poets also give weighty psychological contributions towards throwing a light on human destinies under the influence of impulses and thereby to the new science, the experimental ethics of experience.

As we know, several works are concerned with the influence of the consumption of alcohol. But far more of the most considerable poetical works deal with the influence of the sexual urge on human destinies. This is true of works of both older and more recent times. The older ones, however, are often the most outspoken, concealing nothing and therefore sometimes giving a deeper insight into the real conditions of destiny. A book like the letters of *Abélard and Héloise* (of the twelfth century) will always stand as a spontaneously impressive testimony about two young inexperienced souls who are led into disaster, to the shipwreck of their whole lives by a helpless giving way to the moment, by a heedlees lack of restraint, but where the shipwreck, considered as the penalty of life, is not in a reasonable proportion to the guilt (see the Letters of Abélard and Héloïse). The same applies to the story of two human destinies of a much later period, namely, *Prévost d'Exile's* Manon Lescaut. Both reveal pitfalls in human nature. *Balzac's* Illusions perdues is one of the weightiest contributions in existence to the pathology of the passions. Most of this work bears the stamp of being the author's own experience. It is in a great measure a kind of autobiography.

Turgeniev's "Torrents of Spring", *Sienkiewic's* "Without Dogma", *Bjørnson's* "Mansana", are, besides being poetical works, all deeply searching psychological studies in the phenomenon that a sudden access of passion may, like a gust of wind, at one stroke make a human life capsize and go to the bottom. In all these works it is a question of human beings who have not sufficient control over themselves, and who, having accidentally been thrown into a particular situation, become the shuttlecock of circumstances and an easy prey to their power. A chance event sets their minds vibrating, and the vibration increases till at last they are no longer able to control it; it grows into a passion that takes entire possession of their souls and devastates their lives. A historical example of this phenomenon of character is to be found in the German politician Lassalle. Bjørnson has drawn attention to the fact that the same phenomena of character are to be found in Captain Mansanas's and Lasalle's destinies. *Tolstoi's* book, "The Kreutzer Sonata", and *Annunzio's* "The Innocent", also give penetrating contributions to the pathology of the passions. In these human destinies too, the results of the continual yielding

to the impulses and pleasures of the moment is that human lives are ruined. In Annunzio's book the failing self-control is described thus: "I had all the violent impulses of an unbridled nature; more than once I was attacked by a sudden impulse, more than once taken by surprise by an immediate, suddenly rising cruel instinct." In this case this kind of character leads to its ultimate consequences, the murder of the child. "the innocent". Finally comes the most intense of all anguish: "I felt that this woman kneeling there and I were both suffering beyond human endurance, were suffering under the everlasting human misery, under the inescapable curse of sin, under all the shame caused by our animal urges, and I felt a horror of all that which is unalterable, bound up with the existence itself, and all the physical misery weighing down our love."

In two little psychological masterpieces, "Magnhild" and "Absalom's Hair", *Bjørnson* has likewise contributed a penetrating elucidation of the psychology of a weak character. In "Magnhild" he says somewhere, *inter alia*, "There are many who ruin their lives for want of love, or because of giving in to their love. Some could perhaps not do otherwise— people differ so much, circumstances are often so extenuating, but those whom I have seen doing it could most certainly have controlled themselves and in that way have gained new strength. They gave up every attempt, however, being encouraged in this partly by a literature and an art the shortsightedness of which was due to its being infected in its will." The consequence of the failing power over oneself, that the possibilities of life are wasted and the purpose of life is missed, is described by Bjørnson in "Absalom's Hair" in strange, forcible expressions: "What you are you must not be; what you can do you may not do; what you ought to become, to that you can not attain. Like you, so was your mother before you, away on a wrong road. And your father too, getting into sheer folly — — — Why is it so? After all, we have more in view than most others. Something different leads every one of us astray. But the others drive along the beaten track, straight in at the gate to the house of their happiness — — we go astray from the main road and into the wood. Absalom's hair! Why the devil did n't David get caught in *his* hair? Most likely it was just as long as Absalom's. Ah, David did nearly get caught too. Many times, right up to his old age, but at heart David was too strong. His energy was always too mighty; it subdued the rebellious forces; they were not allowed to draw him too far away on errands of passion."

Meanwhile it is not only the sexual urge that can evoke a passion which may ruin a life, even though it be that which is most frequently

described in the whole of the above-named series of works by various authors. A feeling or impulse like hate, arising most often out of the struggle for material goods, can arouse the intense feelings of pain that we call a passion, and that can lead a human destiny to ruin, such as vividly described in the book by Jakob Knudsen: The passionate mind.

Passions often lead to the psychical phenomena that we call emotions. These may consist of an intense joy or feeling of happiness, but emotions are often strongly emphasised by distaste, such as grief, pain, anger, hate and the like. Emotions are evinced in changes in the vasomotor system with a feeling of happiness or joy, appearing notably in vasodilatation; with grief, disappointment, anger and the like in vasoconstriction, infirmity of innervation, incoordination of the organic muscles (with anger in conjunction with vasodilatation). These changes in the vascular nervous system are particularly emphasised and clearly elucidated by Carl Lange[1]) in his treatise: "On Emotions", 1885. Lange assumed that the relation of causes between emotions and the changes in the vascular nervous system was that the latter produced the former. Meanwhile *Alfred Lehmann*[2]) has pointed out in his treatise: "The physical expression of the mental states," 1895, that the vasomotor changes do not occur until after the occurence of the emotions, and that they can endure for some time after the latter have ceased.

The psychological observations of the above-mentioned poets are supplemented by these neurophysiological experiences. A profound poetical work is often a monographic study in the psychology of the passions. In conjunction with the research mentioned of the activity of the vascular nerves this shows 1) that what we call the passions often arises

[1]) Carl Lange (1834—1900). Physician. Graduated in 1859. Published early in his career various minor works which showed his unusual scientific gifts. Was sent abroad in 1867—68, when he studied histology under Eberth and Frey in Zurich and physiology in Florence under Moritz Schiff who awoke his interest in neuro-physiology and the vasomotor changes which later formed the subject of some of his most important works. Best known for his book "On Emotions", in which he was the first to attempt to give an explanation of the emotions and their physical manifestations. Was chief secretary at the International Medical Congress in 1884. Perhaps the most gifted in any age among Danish physicians.

[2]) Alfred Lehmann (1858—1921). Psychologist. Professor of experimental psychology in the university of Copenhagen. Not until contact with works of Fechner and Wundt he got interested in his special field of study: experimental psychology. Took his doctor's degree on an objective investigation on "The Æsthetics of Colours". Most of his works translated into German. See also Scandinavian Scientific Review, I, 1922, pp. 7—13.

from material urges, either directly (from alcohol, morphia, sex or similar intoxication), or indirectly (from hate, which in most cases is due to economic, sexual or other material causes), 3) that passions are, sooner or later, accompanied by strong emotions, and 4) that these, when they are due to material urges, are either directly strongly marked by pain as a consequence of the nature of the vasomotor changes (as in hate, anger, disappointment and the like), or, even if they are momentarily intensively emphasised by pleasure, as a rule followed by strongly marked reactions of pain.

One particular effect on the soul of excessive material pleasure, and the process of variation and refining during it, is that it gradually as it were shrivels up the life of the soul, and wastes away its capacity for moods of quiet meditation, for the joy to be found in the world of art and nature and in the companionship of congenial souls. Here one might perhaps employ an image: under the hot winds of passion the life of the soul gradually shrivels up from being a fruitful garden into an arid wilderness.

In Danish literature there are two philosophers, both of whom have given delicate delineations of the great happiness to be found in the quiet moods of the soul, namely Sibbern and Feilberg. In Gabrieli's Letters Sibbern[1]) says: "All that lived in my soul and refreshed my heart, as I wandered yesterday through those beautiful places, now comes back to me. How can we preserve our youth until our old age? How can vi fill ourselves with the poetry of life, so that it may well up from a never-failing spring? How can we transform the refreshing spirit of romance into that element in which we always breathe, or that may at least always be as near for our refreshment and pleasure as are the waves of the sea on our coasts on hot days in summer for those who bathe and swim in them, or as the freshness of the morning in sparkling dew and the gentle breezes of evening are for us in that lovely season, though it may have its days of heat. How often have not these questions come back to my soul? How often have I not, when thinking of everlasting youth,

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Sibbern, Frederick Christian (1785—1872). Son of a physician. Entered the university in 1802, at first studying law, but at the same time interested in natural science. Went abroad later and came under the influence of Schleiermacher. His view was that experience and observation were a necessary introduction to true speculative philosophy. The concrete and individual appear as the starting-point for a sporadic series of developments striving towards harmony, in which the spirit perceives the unity in everything and its own rise from a supersensual, eternal and infinite centre.

lured it forth to visit me again and dwell in me. Yesterday I gave up myself again to these thoughts under the brightest sky, as I wandered along through the fresh verdure of spring.

What is really the main thing? I asked myself, and I only needed once again—for how often had I not done so on such wanderings?—stop and look about me. There was plenty all around me, reflecting in the greatest beauty the light of the sun in an infinite play of colour, and showing me most vividly the unfolding of Nature in all her wealth of life and loveliness. But here, I told myself, the main thing is to keep and enjoy that which one can have everywhere. For that is my old saying: the less desire, the more true pleasure and refreshment. There is enough wonderful music of life everywhere; one has only to be inwardly still and listen."

Feilberg mentions, as the starting-point of his meditations, a quite ordinary situation. One day in winter a man goes out in the dusk, and from a narrow crowded street in a town he comes to a large, quiet square. The noise can be heard in the distance. It is as though in the quiet one's soul can be expanded and one can collect one's thoughts and become aware of the weather and the sky. The man felt that he could breathe more freely, involuntarily he walked more slowly. The failing daylight from the west fell slanting along the square. A big star shone above the theatre, unusually clean puddles, among the paving stones that were beginning to dry, reminded him of frost. At times a strange calm and bluish gleam was reflected along the wet tram lines in a certain direction, and was not in the least like the red, flickering light of the street lamps. He looked up at the sky. A crescent moon was gradually gaining dominion over the artificial illumination.

A gleam of the fulness of youth flashed through him with a feeling of such extraordinary strength that it aroused his attention. "It is strange," he thought, "it was like that this morning too, when I stood beside the rockery in the Botanical Gardens and watched the play of the sunbeams in the drops of water on the bramble bush. What a strange richness there is about everything to-day! It is as though one noticed more than

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Ludvig Feilberg (1849—1912) was originally civil engineer and become later lecturer at the agricultural high school of Copenhagen. He was a fine observer of individual psychic life and wrote down his observations in a diary, continuing this practice throughout his life. This material was used in his book: "On the Greatest Profit of Spiritual Gifts". Contributed to practical psychology in essays on "Beauty in the hideous and ordinary" and: "On straight flow and circulation in the life of the soul" (1896). His collected writings were published after his death and a society was formed for the propagation of his ideas.

at other times, when one can live for months without feling anything. How can it be?" He tried to remember. Where had he been? What had he been doing? Well, the day before he had been on a long walking tour along the coast to Elsinore. Very possibly that was the reason, for now he remembered that towards the end of that walk he had been aware of the same strong flashes of feeling at the little bay of Humlebæk where the fishermen were setting their nets after sunset. Their talk with each other and the various sounds of the oars could be heard very distinctly across the calm surface of the water, in which red clouds of evening were reflected. That impression was so strange. It was the same when he walked through the village of Snekkersten where the fishermen were standing in little groups outside their houses, chatting and smoking their evening pipes. It seemed to him that there was a peculiar homeliness about the scene and it reminded him strangely of his childhood. But how could such a walk have that effect? If that were always so, then people who walked or travelled a great deal must be very happy. He did not quite know what to think. Meanwhile the comparatively frequent flashes of a feeling of fulness and of clear thinking lasted nearly a whole month, a December of rare and rich experience, and containing many of his best memories. How desirable it would be to know the conditions and reasons for such a period af awakening!"[1])

In the next following passage Feilberg gives many delicate and penetrating considerations on the conditions for the rise of these hours of rich experience, especially the concentrated contemplation of the mind, which is not disturbed by impressions coming from outside and breaking in upon the mood; in this concentration the quiet moments acquire a possible value, a straight course, in which new values are born, while otherwise in life we often move in a mechanical circular course which does not yield such fruitful moments. In the spirit of *Sibbern*, however, we can add to Feilberg's contemplations that the main condition for the rich mood and peace of these fruitful hours is that we have weeded the garden of the soul and cleansed it from all that can disturb and interrupt the concentration, sinking into it with all one's soul. As *Søren Kierkegaard* says: the purity of the soul is to will one thing.

The mental process which *Feilberg* calls a straight course is particularly fertile, creative, while that which he calls a circular course is a mechanical, routine-like movement round the same trains of thought.

[1]) Ludvig Feilberg: Samlede Skrifter (Collected Writings) (1918) 7—8.

(Feilberg l.c., V, 212 seq.) It is the daily treadmill in the task of gaining a livelihood and in administration. *Hostrup*[1]) touches upon the same phenomenon when he speaks in one of his plays about the flock that goes round in the treadmill af life, "with saw and plane, with goods and stuff, with fettered foot and clipped wing". Meanwhile it seems to me that Feilberg, as well as Hostrup, overlooks the fact that the circular course, the treadmill, can also be fertile for the soul, as every task, the daily one included, performed in the same surroundings, if only one is absorbed in and concentrated on it, can produce moods of quiet joy and satisfaction. The satisfaction of the workman, the man at work in an office, the artisan, at the close of the day over competent, well-performed work is in itself a value; and besides, during routine work, possibilities may appear of new things, eg. g., of an altered, more simplified method. Moreover, there are many persons and classes of people who find a particular happiness in the very routine-like character of their work, and who can become quite unbalanced, indeed plunged into distress, when changes of a revolutionary kind occur, cf. H. C. Branner's delicate psychological description in the book: "Soon we shall be gone", (1939) p. 5-22. These workers are of great value in the community and they live happily in their daily task, running along certain definite lines. Individually this is ethically the main point; and in regard to the community these types supplement the creative ones and they are quite indispensable. Life becomes valuable to both types when duty is the luminous star above their path.

The experience that one must seize the moment, make use of its possibilities for inner development or outer progress, has often been expressed by people with a deep insight into life. A few examples of this will be given here. *Napoléon* thinks in particular of seizing the moment in conjunction with *external* progress, in saying: "It is a question of taking advantage of all opportunities, for Fortune is a woman. If you do not seize her today you must not expect to find her again to-morrow." Correspondance de Napoléon I, Vol. 31. *John Millon*, on the other hand, thinks entirely of taking advantage of the moment for *inner* spiritual

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Hostrup. Christian (1818—1892). Author and Lutheran minister. Best known for his plays with interspersed songs, dealing mostly with student life in Copenhagen, of which the above-mentioned, "Genboerne" (The Opposite Neighbours") is still a favourite with Danes.

Branner. Hans Christian. Author b. 1903 in Ordrup near Copenhagen. Writer of several novels. The above-mentioned book is a collection of short stories.

development when he says: "To act rightly without thinking of fame is raised high above all fame. But for right action not a single day must be allowed to pass without work."

Besides this positive form concentration on the single moment has also the more negative one, that of preventing ill-advised words or actions which may have serious consequences. How serious the consequences of a thoughtless word may be for a man can be seen both in the memoirs and in the comprehensive experiences to be found in general literature, from the earliest times until the present day. The Duke of *Saint-Simon* relates in his memoirs that a Huguenot nobleman, Count Roye, who had immigrated to Denmark, reached the highest post of honour at the court of Christian V, became field marshal, but that his whole position in this country was ruined by a single, careless remark of his wife at the king's table, about the queen, Charlotte Amalie, being very like a French lady, Madame P. The Queen heard the remark—although it was addressed in French in a low voice to the daughter of the speaker,—and through the Danish ambassador in Paris she had enquiries made about the looks of this Madame P. and thus learned that she looked like a scarecrow, and was altogether a ridiculous person. From that moment Count Roye's whole position was ruined in Denmark and at last he had to leave the country. Saint-Simon also relates that the great poet Racine, who was in great favour with Louis XIV and Madame de Maintenon, in their presence absent-mindedly let fall a highly disparaging remark about an author, forgetting for the moment that this author was the ci-devant husband of Madame de Maintenon, which created a general feeling of embarassment. Racine was never again invited by the King and Madame de Maintenon, and—according to Saint-Simon—he is said to have brooded so much over his stupidity that he died two years after. At the same time this incident gives a picture of the time, and in a certain way throws some light upon the French absolute monarchy. *Paul Hervieu*'s play: "Les Paroles restent", throw a light particularty on the other side of this matter, that is, on the harm one can do to others, in showing how even the best man, by a thoughtless chance word, to which he does not attach any weight, but which can be caught up and scattered abroad, can destroy the peace and happiness of other people.

Owing to the lack of guidance by experimental ethics hitherto it is no wonder that people are often led astray and fail in their destiny. No guidance can be better than that of illustrating the ethical laws

by concrete examples, for clinical treatment. The experiences in the lives of distinguished people are of particular value here.

Michel Angelo says: "Nothing makes the soul so pure and noble as striving to achieve a perfect work." This expresses the experience of life, that a period which is filled up by an intense task with a definite object, the completion of a work, exercises and sharpens the faculties for fresh works, and at the same time, when the work is completed, the period which preceded it is felt to be a rich experience in spite of the pain and trouble on the way. The opposite of this, the decay and rusting away of the faculties in sluggishness and inactivity has been illustrated in a masterly way once for all by Henrik Ibsen in the character of Ekdal in "The Wild Duck".

The feeling that one has not *lived*, because the time has been taken up with material things, is rendered as a bitter experience of life in an intense and symbolic way by *Hauch* in his play: "Sostrene paa Kinnekullen" ("The sisters in the Kinne-mountain"), in which Ulrikka spends all her life in spinning gold in the mountain, and therefore forgets the passage of time, and only when she comes out does she discover—on seeing her white hair and her entire aged appearance—that life is gone, has run away from her, that in her passion for gold she has forgotten to live. This tendency, greed or eagerness, caused a psychical displacement, as the tendency is gradually moved from the wish for material pleasures to a means, the means of interchange, money, by which the pleasures can be obtained.

Those to whom no part of the world of the soul and spirit is strange, and who have been able to comprehend them all, get the fullest feeling of living. If a human being has lived in only a part of this world, a feeling of not having wholly lived after all may indeed come towards the end of the period or the life. This is the experience of life which *Henrik Ibsen* has expressed in the play: "When we dead awaken." The intensive life of work has not been able to compensate for the great exaltation in the purely human relations of life. Both are necessary for a complete human life.

Hauch, Johannes Carsten (1790—1872). Author and zoologist. Born in Norway, which was then under Denmark. On his father, a county magistrate, being transferred to Denmark, Hauch come to Copenhagen, and at the age of seventeen took part as a volunteer in the defence of Copenhagen in 1807. First poems published in 1810. The play mentioned above is one of his later works.

In the old Indian, religio-philosophical systems, especially in the Yoga doctrine, there are several valuable rules of life, especially with regard to training in self-control and introspection. Here it is pointed out that man in various ways can train himself in the ability to *concentrate*, to get absorbed in work, or in other spiritual values.

Mental derangements and nervous trouble are often due to a cleavage between contrary tendencies, to a scattering over too many fields, that is, to a lack of concentration, to absorption in a definite task. That which is called "overwork", which is generally supposed to be caused by too much work, is often due to too little work, i. e., to lack of really serious absorption in some definite task, to flying hither and thither from one thing to another without a definite plan, to a badly arranged working day. A French physician, a specialist in mental diseases, once said very pertinently that a great number of the nervous complaints of the present day are not due to "trop ménage" but to "mal ménage", that is, not to having had too much to do, but to having had no plan or method. From my own experience I can testify that I have met many people who have got weak nerves from having too little to do and only very few whose nerves have been weakened by having too much work.

Altogether it is important every moment to keep out disturbing influences and impressions, to aim at *gathering all the forces of the mind* about the one thing needful, the work that has to be done exactly now, and which must be finished first before new tasks are taken up, or about an experience of values, beauty, goodness.

Besides giving advice and rules about the best ways leading to concentration or absorption, the Yoga doctrine also gives advice in the art of self-control. One may be trained in this by now and then deliberately doing the opposite of what one would like and be inclined to do. In that way one can gradually train up a *choice of motive*, and one can come to the aid of a good, needy motive. This, of course, does not mean that every time one would like to indulge in some pleasure or other, *e. g.*, to visit a theatre or to eat some appetizing food, one must do the opposite and deny oneself the pleasure. But by denying oneself now and then a pleasure man shows that he is master over his formation of motives and training in self-control. Meanwhile the point is here that which I would state in this way: in the race between the motives to check the motive to which one would deny the power, at the finish, that is, before it grows too strong. By concentrating one's attention more and more on that which is to be preferred, the will endues a motivating thought with energy

and makes it strong. As pointed out above, one cannot obtain anything durable by the merely negative: suppressing a motive of pleasure; one must put a new motive of pleasure in its place and gradually strengthen it, so that it overcomes the bad motive.

ETHICAL VALUES OF FAMILY TRADITIONS OF CHARACTER

That a strong development of character under the right ethical principles as a guiding star can elevate a family, keep it together and contribute to forming great leaders from its distinguished members, is markedly testified in the Bernstorff family. The first eminent man of this family, *Andreas Gottlieb Bernstorff*, a Hanoverian landowner, and minister in England, drew up the so-called Bernstorff family statute, in which he laid down the sum of the ethical experiences of his life, as a spiritual testament and guiding line for the family. The two most famous of his descendants, the Danish statesmen, *Johan Hartvig Ernst Bernstorff* (1712—1772) and *Andreas Peter Bernstorff* (1735—1797) bore the mark of this high ethical standard in their whole manner of life. In this family statute *Andreas Gottlieb Bernstorff* enjoined upon his descendants, with regard to the management of the family estates, not to consider their own immediate advantage, but to think of the future and of what would be best for the whole family; there were strict regulations against misuse of land in fields and forests, precise rules about mortgaging of the estates and about the quick and punctual payment of every debt: the surplus was to be applied to rounding off the estates by new purchases, to the improvement of the cultivation or to new buildings. A certain sum was to be put by as capital for a reserve fund and as a help in bad years or other misfortunes.

The flourishing of the family was to be promoted by sensible means; not all men ought to marry, only those who had the means to do so, and those whose physical and spiritual qualities ought to be propagated, not weakly and immoral individuals. Conversely, none who fulfilled the conditions ought to refrain from mariage, especially when there were but few members of the family. The greatest prudence was enjoined in the choice of a consort; wealth and a large dowry must not be the first consideration when the head of the family sought a wife, for what use was it if the wife brought a large dowry into the family, if her character and habits perhaps were so bad that she ruined her husband

by bad housekeeping or perhaps even "irreparably prejudiced" the family by becoming a bad mother. Nor, in the choice of a wife must they follow "the common caprices of youth, transports or ill-timed, even lecherous amours" or look only for beauty and a fair face, but they should choose their wives of such good birth and family, and with such good qualities of body and soul that it would do honour both to them and their descendants. It was absolutely necessarry that the wife should belong to a good and honourable family, "for hardly any good can be hoped for from people of a bad stock".

With regard to the up-bringing of the younger generation the statute gave more detailed rules. The young Bernstorffs were to be brought up to reach a true fear of God, to virtue and right living, and each in his own way to serve "the public and the world". The boys were to be healthy and strong, yet all physical exercises were to be regarded as secondary: dancing would not help them to make their way in the world, and to learn more fencing than needed for self-defence was not seemly for a Bernstorff. The boys were to be educated in the country until their twelfth year. Later, however, they were to be sent to other places where they could learn more, but not to places "where dissipation was rife", such as at great courts, but to schools and colleges in smaller towns. Whether they were so inclined or not, and apart from their abilities, the boys were to have a thorough training in arithmetic and geometry, and especially in history; they were to learn the most important foreign living languages until their seventeenth or eighteenth year, so that, even if they did not want to continue their studies "they would not grow up in such ignorance that they would be unable to obtain honourable government positions, or to serve their country and their family". Later they were to travel, but they must not be too young nor travel too long, only for a year and a half, so that, as so often happens, they should not spend time and money to no purpose. But above all the young were to be trained from their earliest years to shun "all worldly dissipations, which are having such fatal consequences for youth, such as drink, gambling and the like."

„All that is present is momentary (omne prasens est momentaneum) and soon passes away, the future things last long and one must therefore not, for the sake of a small pleasure that is soon over, spoil that which will and has to last so long." This is the serious keynote running through Andreas Gottlieb Bernstorff's family statute. He solemnly adjures his descendants to bear in mind that they are noblemen and come of an

honourable stock "who have lived well and with honour in the world": they must therefore so live that they do not bring dishonour on the name and memory of their forefathers. Each one must live honourably, and so must also the family as a whole; they must keep firmly together, avoiding strife and disunion and living in friendship, as Andreas Gottlieb Bernstorff has lived himself with his brothers and cousins and all his kinsfolk. They are to remember that they must live in the world but must leave it as it is and let others live, that one cannot change or convert the world, but must leave it as it is; one must conform to the world, for the world will not conform to us; we do not live among angels but among human beings; they will meet with much that is bad, and they must bear with others in many things; yet neither should they seek a quarrel with anyone nor, on the other hand, how good it may be to accommodate oneself to others, give way in a matter that leads to something bad, or that is against their own dignity or against the commandments of God. They must always bear in mind that their own dignity and the welfare of the whole family is very closely bound up with the good of that country and community in which they live, and they must therefore do everything in their power to promote the good of this country.

Every man in the family must have a thorough knowledge of the family statute, and when he comes of age he must promise solemnly to abide by its decisions. From pure love and care for his kindred Andreas Gottlieb Bernstorff gathered together and entailed such large estates; he therefore hoped that his kinsfolk would prove themselves worthy of his trust in them and honour his work.

In this document, which for two hundred years has been the foundation of the existence of the Bernstorff family, Andreas Gottlieb Bernstorff laid down the fruit of his work, the sum of his experiences. It is an earnest appeal to live an honourable, industrious life in self-esteem and respect for the community in which they have to live. The regulations of the entailed estate entered into so much detail in the whole existence of the family, that during the first three generations recourse had to be had again and again to the heavy parchment book in order to penetrate to the core of the founder's thoughts. The soil from which they drew their sustenance reminded them continually of their ancestor's labours and benefactions. Is it a wonder, then, that to those first generations his commands and injunctions seemed to be written with luminous writting? From them issued the tradition in which those

Bernstorff were born and brought up who were destined to perform their life's work in Denmark, and of whom two were among the greatest and most distinguished statesmen in this country.

Thus all the experiences from the most different spheres of life, from medical science, from the insight into human life of the great religions, from the witness of history, from human destinies in the works of the great poets, all confirm, each in their own way, the laws of life which I have tried to indicate above, that is, the law of character, the psychical laws of pleasure and pain and the laws of concentration.

II

SOCIAL ETHICS

As in individual ethics one must begin, in social ethics, with that which cannot be disputed, because all experiences speak for it and none against it. Individual ethics must therefore, as I have shown, first deal with 1) the spiritual health of man and 2) his earning capacity. It was pointed out above that some of the most important demands (about industry, frugality, self-control, etc.) which have arisen from the experiences of the human race through thousands of years, are collectively an expression of that fixed line or law in human life which is called *character*, which is the fundamental condition for the health and earning capacity of every single human being. At the same time character, in this qualified sense, ensures order in society.

Not until the demands under 1) and 2) which are the fundamental conditions for attaining human satisfaction or happiness at all had been examined, could individual ethics pass on to the far more difficult task, 3) that of trying whether it it be possible to discover certain psychical natural laws for human inclination and disinclination and thereby to arrive at an objective guidance for the inner conduct of life in the choice of the relatively most intense and most enduring states of satisfaction or happiness.

In the same way we must, in social ethics, pass from the simple and certain to the difficult and disputable. An ethic which, like utilitarianism, establishes the greatest possible happiness for the greatest possible

number as the aim of ethics, at once begins with the most difficult and most disputable point, that is, the idea of happiness. Next, the aim mentioned of utilitarianism can, as I have shown, not be founded on reason at all.

It is, however, an over-estimation of the strength of the community to suppose that the community can create the happiness of human beings. The deepest sources of happiness lie in the individual human himself, and the ability of human beings to find deeper satisfaction or happiness varies extremely. Some people have a bright and happy disposition which enables them to find joy everywhere on their path, even in the smallest things in life, others have a gloomy and bitter disposition which rarely has the experience of being really happy, and if man lacks health and character there is no happiness. What social ethics, the evaluating social science, can do, is, like individual ethics, in the first instance only to create certain fundamental conditions, so that people can seek satisfaction or happiness unhindered; for social ethics in the first instance by preventing men from mutually injuring each other, preventing A from interfering with B's way of living by causing him suffering.

That men must be prevented from injuring each other, if there is to be any happiness on the earth, is the result of human experiences for thousands of years, and, as touched upon earlier, it has been the guiding star in all laws of society from the code of Hammurabi and the law of Moses to the penal laws of our times and other laws. But all law-givers have only succeeded in striking at a limited number of injurious actions. Meanwhile more and more of these actions have, during the development of the human race, been brought within the province of the law. The law of Moses, as we know, is directed against only a smaller number of injurious actions: thou shalt not kill, thou shalt not bear false witness against thy neighbour, thou shalt not steal, etc. Besides the ten commandments the next following chapters in the book of Exodus contain a number of more detailed rules against various injuries, with special penalties for the different kinds of injury. The code of Hammurabi also contains a series of commandments with special penalties for the various kinds of injury (Code of Hammurabi §§ 195—233). The same holds good of mediaeval laws, thus also the provincial laws of the Scandinavian countries. The penal laws of the present day also include a number of particular, injurious actions with special penalties for each of them or for each group of them, only with the difference that the injurious actions have increased many times more

in number in the statute books of the present day than in the laws of antiquity and the Middle Ages. From being ten, twenty, forty or the like in the old laws, the number of these actions has now increased to two hundred or more. The reason for this, however, is not that men have become worse, but is to be found in quite other causes, especially in the relations between men in the modern community having become far more complex and therefore offering possibilities of a far greater number of particular *kinds* of injuries than in the communities of earlier times, and that human beings, through their higher mental development, have become more sensitive to injuries by their neighbour. The laws of the Middle Ages had penalties against theft and robbery, but no prosecution against fraud. Men of the present day are often as greatly injured and ill-used by fraud as by theft, and at the same time the more complex conditions of modern times present a far greater number of possibilities of fraud, of different kinds, than were to be found in the mediaeval community.

While the laws of earlier times were directed solely against particular injurious actions, carefully enumerated and accurately described, a *general* principle finds its way into the community of modern times, and is directed against *every injury* which men can cause each other, regardless of the kind of injury. This is due to the fact that the modern community to a wide extent, besides *penalty*, employs another, more pliable legal instrument, namely *liability to compensation*, against injurious actions. Penal laws must also at the present day carefully specify the actions involved, as it is of the greatest importance to the legal security of the citizens, as regards the judicial and police authorities, to know beforehand exactly for which definite actions they can incur a penalty which may have the most serious consequences on their lives, and for which actions they do not incur it. The punishable actions must therefore be clearly defined in the law. But with the liability to compensation, which normally does not affect either a man's liberty or his honour—which in most cases a penalty does affect—the community can without hesitation carry out a general principle directed against every injury against a person of which another person is the cause. This general principle of law, also called the general rule of compensation, does in fact make its way everywhere in the legislation and juridical practice of modern communities. Thus, as an example, the French statute book of civil law establishes as a general law, without any kind of specialising, that: "Every human action, which causes injury to another human being, renders him who causes the injury,

liable to make compensation for it" (Code civil Art. 1382). By means of this general principle of compensation the communities of the present day have advanced further in preventing people from injuring each other than the communities of earlier times ever did. Through this principle the courts are able to strike and award damages for a number of the most important injuries that men can cause each other.

It would seem to be a foregone conclusion that with the general rule of compensation an ethically ideal state of law had been reached, as this rule is so comprehensive in its formulation, that in its wording it strikes at every injury that one person can cause another or for which he may be said to be guilty. This however, is unfortunately not the case. People injure each other any number of times in daily life, without the general rule of compensation being able to prevent or strike at these cases of injury, which are often injuries against another person's health or his pecuniary means. This is due, as I shall show in another book, to a very large extent to imperfections in the present social order itself.

But even if the law, under a more perfect social order, were able to strike at all the injuries that people cause each other, this ethical and juridical problem would unfortnately not thereby be exhausted. A very difficult part of the problem still remains to be solved. Ethics and jurisprudence cannot deliberately set themselves the task of preventing men from injuring each other without trying first to arrive at a clear understanding of this problem: what does it means exactly to *injure* each other? What is contained in this word? And is it desirable that every injury, caused by human beings against other human beings, should be counteracted by the juricial order?

This important question has hitherto been greatly neglected in ethics, which has been far too abstract in its utterances about it. In this sphere too ethics has hitherto not been any science, for it has quite neglected to obtain that knowledge of the real life between men, of the rich material of experiences to be found there, and without which ethics cannot become that experimental science of experience that it ought to be. On the other hand, another science, jurisprudence, has in a very high degree collected experiences here and cultivated this field. Ethics can in very large areas find support in the experiences of this special science. But here as elsewhere there have been dividing walls between the special sciences. One science, ethics, which on this fundamental question has an entire uncultivated area, simply does not know that the same area has for a considerable length of time been intensely cultivated by another science, that of jurisprudence. Positive jurisprudence and the general

theory of law have both, in their investigations of what we call in jurisprudence: unlawful actions, including in them the idea of injury and guilt, thrown a light upon this difficult problem: shall the infliction of injury by persons against persons in all cases be avoided and must it be judged as contrary to law, and thereby, inter alia, incur compensation? This problem, however, is so difficult and comprehensive, that even jurisprudence with its great experience, has not yet reached a final solution. Later, in another book, I will give a more detailed investigation into this question. Here I shall therefore, in determining ethics, keep to certain main points showing where the problem lies.

When we say that a person A injures another B, it may mean, that A either causes B to feel a displeasure, a suffering, hurts him, physically or mentally, or deprives him of a feeling of pleasure, prevents him from getting access to it. In several cases we humans are, however, under the necessity of injuring each other in these senses, and yet it is not possible to hold anyone legally responsible, nor can we ethically be reproached with anything. In the work of training and teaching parents and teachers must therefore again and again by just criticism and guidance deprive the children of a feeling of pleasure and sometimes cause them pain so that they may avoid the dangers of life. In judging literary, artistic, technical, scientific and other work, it is often unavoidable for one person to cause another person feelings of pain. The authorities of the State are often compelled, by means of punishment, to cause those persons who transgress the legal order of the community, great suffering, in depriving them of liberty, of fortune, and so on. Furthermore people must often cause each other suffering by disappointing expectations about getting into contact or keeping up contact with each other, whether in personal, business or other relations, as each person must have a certain amount of liberty to decide with which persons he wants to be in contact, and liberty to break off contacts which he does not care to keep up any longer.

Even in these conditions, however, those of education, criticism, punishment, the ordinary human life in community and other conditions, it is important to maintain the ethical aim, not to injure one's neighbour, as the chief principle, as a guiding star, as in these conditions even justifiable suffering should not be caused to a greater extent than absolutely necessary for its purpose, and likewise one can also, in the *form* or *manner* in which one educates, punishes, expresses one's criticism, breaks off a connection or declines to enter into one, do much to lessen the suffering or reconcile the person in question to it.

Next, however, it must be emphasized that even if there are several different cases in which the injuries caused have been justified, they are and must be *exceptions* from the ethical main principle, and, be it noted, exceptions for which a *special reason* must be given in each case out of *higher considerations* than considerations for the pain of a human being in a definite situation. A leading fundamental principle can in reality be deduced from the above-mentioned groups of cases of the causes of injury, namely, that such an infliction of injury is only justified in which either consideration for the *person himself on whom the pain is inflicted*, or consideration for the *community* necessarily demands it. For the sake of brevity I will in the following call this ethical principle the principle of exception, as I cannot find any better word, while the leading ethical and legal principle of not injuring one's neighbour is called the chief principle.

The aim of social ethics and jurisprudence is expressed by the old word: justice. This expression, however, comprises several concepts which must be kept separate, yet which all tend in the same direction. Firstly, there is comprised in it that which is expressed by the above-mentioned chief principle and the principle of exception. It is in this sense that it is used by the older and newer statute books. Thus the code of Jutland (of 1241) and the code of Denmark and Norway (of 1683 and 1687) says in the Foreword: "If every man were upright and would be content with what is due to him by *right*, and not seek the *hurt of his neighbour*, but give to him the same right that he would should be given to himself, then there would be no need of law; But therefore is the law set, that the righteous and peaceful may enjoy their right, and the unrighteous and unjust, who will not do what is right according to what is writ in the law, can suffer that punishment which is set by the law, who have been judged to have done *wrong*." As the italicised words show here, *justice*, according to these statute books consists: in *not doing one's neighbour harm*. The same holds good, as mentioned, of the French civil code (of 1803).

While it cannot be demanded, as shown in regard to utilitarianism, that one should strive at creating feelings of pleasure in all men, regardless of their quality or earlier behaviour, there is, on the other hand, a *special group of cases*, in which one must *counteract misfortunes* of people without considering their quality or earlier behaviour. The cases in this limited group are *emergency cases*. It is only good for all mankind that society should lay upon individuals the duty of mutually helping each other in cases of emergency. Even the penal law imposes

this duty to a limited extent; and the social laws of insurance in a great measure enjoin upon men the duty of mutual help against such general misfortunes as illness, disablement, old age and unemployment. But taken as a whole it must be regarded generally as an ethical duty to help people in need. And in these cases the help must be given without considering quality or earlier behaviour. This is natural for the very reason that in cases of emergency there is, as a rule, not time to examine the quality or earlier behaviour of the person in need.

It ought to be the task of the coming civilised society to abolish all social need, not only in the sense of hunger and undernourishment, but also in the sense: unhealthy and hideous dwellings. Meanwhile the general provision of society against this will again make the quality and behaviour of people a matter of consequence, not in so far as it concerns the *past* of those in need, but in so far as it concerns their future. It is only the *undeserved* need that society can undertake to abolish. If society can bring about good conditions of work and wages and good housing, it must be the affair of people individually to make use of them in a sensible manner. Society cannot abolish the need that afterwards arises because of drunkenness, laziness, lack of cleanliness and hygiene. As an English expert on questions of housing and slum areas once said: "Society can abolish the slum areas, but it cannot abolish the slum mentality."

The concept justice, then, in this sense naturally comprises both the duty not to injure one's neighbour and the duty to come to his aid in case of need.

Meanwhile the word justice is also taken in another sense. Thus, in Plato's opinion justice consists in everyone doing the work in the community for which he is fitted and not engaging in things that do not concern him (see above, p. 27). There is no doubt that Plato's idea marks a sense of the word justice in which men *also* find the ideal of this quality. Thus we say not merely that it is unjust that A inflicts an injury on B without higher reason, and that he does not help him in need, but also that it is unjust that B does not get that business or position in society for which he is so particularly fitted, and that A, who is not so suited, gets it. Of course it can be said that justice in the latter sense is a subordinate part of justice in the former sense, when taking a wide view. For as a rule, by preferring the unsuited A to the specially qualified B one would in that way, firstly, cause pain to B, without being justified by a higher reason. If B takes up a quite neutral attitude, being willing to accept the position if it is offered him, but on the other hand not being

particularly anxious to get it as he has other interests in which he is just as ready to be engaged, then, indeed, *he* does not suffer any disappointment or pain if the position is given to A; but his fellow citizens, society as a whole, are injured in a general sense by a position in this as in other cases not being occupied by people specially qualified for them. The injury, however, is of an indefinite kind and is dispersed in many number of cases in daily life, in which it is seen to be unfortunate that people do not satisfactorily perform the work of the position they occupy. There may therefore be good reason to emphasize this meaning of justice as something special.

Taking it in its widest sense it is therefore possible, as far as I can see, to distinguish in the concept justice among four different concepts:

1. It is justice that men do not injure each other without a higher social reason, and that they help each other in need.
2. It is justice that each person obtains that occupation or position in society for which he is particularly qualified by this character and ability, and not the occupation or position to which he is not suited.
3. It is justice that every person receives that payment for his work which, in view of the interests of the whole community, is the right payment for such work.
4. It is justice that every person contributes to those provisions by the community which are intended to avert dangers or to be of common benefit to all.

Here as everywhere in ethics and social science, it is the experimental proof of experience alone, as I have tried to point out, which can give a reason for the leading points of view. But the four principles of justice pointed out here have indeed the countless experimental experiences of thousands of years behind them.

With regard to principle 3 it is to be stated that we say, for instance, that it is unjust of A, as the owner of a business, to take the greater part of the profits in it for himself, and to pay his employees wages that are far too low for their work, and for their contribution to the prosperity of the enterprise, or that a trust or cartel, by securing the monopoly of trade, compels prices from other members of the community which are not in the right proportion to the prices or wages paid to other members of the community for their work or efforts respectively when compared, from the point of view of the interests of the community. with the contributions of the trusts or cartels.

When principle 3 is not fulfilled there is also an injury to people, in causing suffering or want (deprivation of pleasure), but as in principle 2 the injury in these cases is too often of a more indefinite kind, spreading its effects to large and indefinite circles of people.

The wages for the work of the individual are paid by the community of the present day either in the form of the *right of ownership* over the *individual* objects produced, or in the form of a certain *sum of objects determined by their kind*, especially *money*. The independent artisan gets the right of ownership over the things made by him, the manufacturer over the goods he has manufactured, the artist and author over the works of the mind created by them, and so on. Those who work in the service of another and produce articles which are a part of mass production, and all those whose work in the community does not consist in the production of objects, receive wages in the form of certain payments of money. But in this case too the worker gets a right of ownership, namely to these objects determined by their kind. The right of ownership is in the first rank the reward of the community for a contribution in the form of work.

It is in the comparative valuation of the contribution of individuals or groups that the possibility of arriving at just prices and wages is to be found. The old mediaeval ideal of justum pretium can and must be realized also in the modern community. Meanwhile, when one enters into details, it is a difficult problem: how is one to be able to compare, qualitatively, the importance of the very different contributions of work to the community? I shall deal more closely with this problem later in the other book above mentioned.

The above-mentioned four principles of justice, 1—4, are *lines of direction* for human conduct, *ideals;* but like all such ideals they can only be reached approximately on this earth, on account of the wickedness, egoism and other imperfections of the human race. The order of law can only to a certain degree counteract these bad qualities of man and therefore only to a very limited extent realize these ideals of justice.

The word suitable or expedient means, linguistically, something that is suitable, that answers the purpose, the intention, especially an action or omission that answers the purpose or intention of him who acts or omits. This purpose may be both good and bad. But in individual and social ethics and in jurisprudence we take the word expedient in a qualitative sense, that is, as comprising that action, omission, conditions altogether, which a) either satisfy vital needs of individual or community or b) avert dangers to them or c) give the relatively most lasting

feelings of pleasure, when the life of the individual is considered as a whole. And in this sense the word suitable or expedient is taken in the following. Suitability or expediency in the sphere of the community therefore, in social ethics and jurisprudence, coincides with the concept justice, as the four principles pointed out above will, taken altogether, carry out the purpose a), b) and c) in the social sphere for all the members of the community as a whole.

Principle 3 touches the problem of the just division of the good things of life in the community. In itself one might imagine the community so ordered that all its members should receive the same wages for their work, regardless of the amount or quality of that work, and consequently those who did not do any work would receive the same wages. This arrangement, however, would not be expedient for the interests of the community as a whole, all experience showing that for society as a whole the best work and the largest amount of it is obtained when the remuneration paid is adjusted as carefully as possible to the great wealth of difference in the character and ability of human nature. What we therefore call unjust in this respect is exactly that which is inexpedient for society in the long run, when a man does not receive that payment for his work to which he is entitled by its quantity and quality, which again is determined by his character and ability. When a small privileged class in society, e. g., the nobility in France before 1789, while a large part of the people were suffering want, seizes wealth which is out of all proportion to the contribution of this class in the form of work, in either quantity or quality, this is felt to be particularly unjust, and was felt at that time as such a bitter injustice that these feelings found vent in a revolution. The social order in France before 1789 was then in the strongest opposition to all the four principles pointed out. The unjust distribution of the good things in life resulted, moreover, in even direct suffering, want and hunger in large parts of the population.

Even if one were doubtless able, with regard to the principles 1, 2, 3 and 4 to effect a far more just social order than the present one, it would still not be possible, as the social order can only provide the outer framework about human life and the right lines of direction for it, for any society, were the judicial order ever so perfect, to reach the great ethical aim: that no human beings should cause each other suffering without a higher reason, and that all men should have the work and the payment for it to which their character and ability entitled them. If this great object is to be achieved then not even a deeply searching reform of the present social order will suffice; for a revolution in the human soul

itself is required to gain it. The human soul that we meet—even at the present day—in a great number of people in daily life, is not the type of human being that is capable of carrying out the principles of justice mentioned in relation to their neighbour. The modern people in the community are incessantly transgressing them, often causing the greatest suffering and alas, as a rule to the best of them. Just as a great number of the modern type of human being have not, in individual ethics, attained to the inward control of themselves, which, as pointed out, alone can give man the deepest satisfaction with life, so the human types in social ethics have not reached that superior state and control when their own interests are at variance with those of their neighbour, which would make them refrain voluntarily from hurting each other, physically or mentally, and voluntarily concede to each other the position to which the character and ability of each entitles them, and the remuneration that the work of each has deserved. This social, ethical imperfection is of course closely related to the individual one. For when the material goods become the highest ones for a man, it naturally follows that he will try to acquire as many as possible of these goods, even to setting aside the principles of justice. But besides this man has, from his primeval state and its fights still preserved the urge of hate. The passionate struggles and wars between the nations, even at the present day, about the boundaries between their countries, about colonial possessions and other goods, the incessant fights between classes and parties in the individual community, and the ruthless economic race between individuals in society, show not only the predatory greed of the lower type of human being for material goods but also a spirit of hatred, a savagery, which yields in nothing to the fierce fights of the beasts of the jungle.

Hatred is often evoked by selfishness in those against whom the hate is directed. If one class in the community has appropriated unreasonably great benefits at the expense of the rest of the population, the selfishness of this class is in the end avenged by the hatred of the people being turned against it and finding a vent in social struggles, and if stagnating or small nations have appropriated enormous colonial dominions and obstinately insist on keeping them, at the same time that populous and great nations have no colonies, this disproportion and the persistent selfishness of the former nation provokes in the other nations a hatred which often ultimately finds a vent in war.

So long as this selfishness and hatred, in conflict with the principles of justice, continue to rule the nations, classes and individuals, humanity will be split up in social struggles and national wars, and thereby be

hindered in development. It is a weighty testimony of experience that the two religions, Christianity and Buddhism, which in individual ethics show us the highest type of man, in the relation between human beings both regard hatred as the great disaster. And the outlook on life of these highest religions is of so much greater weight in that they, here also, arrive at the same result from different premises. Buddhism regards hatred between men as a consequence of the greatest evil in human life, material desire. From desire follows hatred. Man must set himself free from both if he would reach the highest. The anathema of Buddhism on all hatred between human beings is its superiority to this as to all other passions. The Christian condemnation of hatred is consequent on its regarding unselfish love between human beings as the highest aim in life.

But what these religious outlooks on life, the result of their deep experience, have summed up in brief expressions, can also be founded on a sober basis, like every other result in ethics, that is, through an experimental knowledge comprising the experience of mankind in the various spheres of life. Buddhism has seen clearly that hatred is an unhappy feeling, a passion which disturbs the peace and harmony of the mind. Christianity has been equally right in seeing that the positive feeling, unselfish love, is a happy feeling, indeed that it contains the highest feeling of happiness and harmony. Next, however, the real purpose of human life speaks against hate and unjust selfishness. From a detached point of view this reason can be thus expressed: hatred between men is *unpractical*, for it hinders the *productive co-operation* between them. We have many experiences of this in daily life, in the affairs of associations and joint stock companies, in organisations, in official affairs and so forth. In all these practical relations the barren hatred between men, and the consequent strife, intrigue, undermining, cavilling, often destroy productive co-operation, to the detriment of the enterprise, to the destruction of the whole. Furthermore, the hatred between the classes is often a hindrance to the best productivity. And now, in the twentieth century, the hatred between the nations and their selfishness hinder co-operation and again and again lays civilisation waste in protracted wars. The hatred sown between men by the wars of religion in the sixteenth and sventeenth centuries is now sown between men in the nineteenth ad twentieth by the wars of nationality in the same Europe, only many times more.

In the present state of things the individual person and the individual nation feel isolated in the struggle, on guard towards others, expecting

attack from them, from behind as well as in front, and the basic condition for peace at work, for harmony and happiness in life, namely *confidence*, unconditional confidence in one's fellow men, is therefore lacking. In a given situation they may prove to be good comrades, ready to help in case of need, but they may equally well prove to be beasts of prey who murder one from behind, economically, intellectually or physically. The man who, for instance, carries on a business in a street in a large town never feels sure of being allowed to work in peace within the area of his business. Suddenly one day an enterprise on a large scale, backed by numerous corresponding branch businesses in the country, swoops down on this street; and, under cover of a newly started, apparently independent small business backed by plenty of capital, it will ruthlessly undersell and at last ruin the older business. In another case a man works, for instance, as one of the staff in a large business, either as an assistent or bookkeeper, or stock manager. Among those on the staff of such a business there is often a hard struggle for existence. There *may* be good comrades who help each other and unselfishly leave a vacant position to him who is specially qualified for it, while it may also be that the head of the business is so extremely capable that he always chooses the right people for the right posts. But it *may* also happen that one or several ruthlessly elbow their way on, by intrigues, underground work and the like, and under an insufficiently capable management seize positions which other, competent people in the business could have filled better, or which people who had been longer in the business than the climbers could have filled just as well.

The conditions in this respect are not better within the intellectual life than in that of business. It is naive to imagine that a more ideal, fraternal relation prevails among the intellectually productive than among other people. As a matter of fact the same greed, envy, hate and consequently the same intrigue, undermining and ambush attacks prevail in the world of science, art and poetry as in the world of commerce and officialdom; and the climber type is just as common in intellectual life as elsewhere. The war to the death is the same, only it is veiled slightly under a foreign word: polemics, which is derived, however, suggestively enough, from the Greek word for war *polemos*. In polemics the main point as a rule, in the spheres of science, art and belles-lettres, is still at the present day not a question of finding the truth by means of mutual fraternal help. In most cases the exchange of opinion is merely polemics; and polemics can best be defined as an intellectual war, in which the chief motive is barren self-assertion, and in which the statement is spun

out and time is wasted on irrelevant side issues, with the purpose, of no importance to truth, of holding one's own.

When the conditions of daily life in the community, however, both in business and in intellectual life, are a state of continual warfare, in which men, by their mean self-assertion, envy and hate, ruin or injure their neighbour by brutal competition and polemics, it is foolish to feel particularly scandalised when the relations between the states are decided by the same mean qualities and by war in all its forms. The single nation can no more feel secure in the relation between the states than the single human being in society can be secure from the attacks of others of his kind. A small nation may be so fortunate as to live next to a large state, which is either satiated with possessions or for other reasons is not interested in swallowing up the smaller state. The latter, however, may also be so unfortunate as to live next to a great power which is only on the lookout for an opportunity and a pretext to devour the small nation. Meanwhile the wars between the states are only an outcome of the hate and the fights between men. Even if all wars between the states were to cease, the far greater evil for mankind, the daily, persistent fight between individuals with the lowest means in business and in intellectual life, from trade to trade, from one occupation or profession to another, would still go on.

This great insecurity everywhere in the world of men, between single individuals, between classes in the community, between nations and states, will never disappear so long as hate and unjust selfishness are to go on having the mastery. Nor will ever, so long as this lasts, that intensive collaboration set in between all men, classes and nations, which alone can lead human beings up to a higher form of existence, a higher type of life with far greater results of work and a far deeper satisfaction or happiness than it has hitherto fallen to the lot of mankind to reach. Mankind must follow the highest human types as leaders on this road upward. The most highly developed type of man, the superior human being in the best sense, does not hate. It holds good of Goethe as of Cæsar. He simply has not *time* for it; he has other, more useful things to do, his *productive work*. And, as we saw, the religions of the deepest thinking, lead men upwards towards the same great goal, the cessation of hate.

The state of insecurity in the present life of man will only give way before the advent of a new type of man, who will be as high above the present ordinary human type, as the latter is above the Neanderthal man. The new man will be wise enough to see that only when all positions

are filled with those best qualified to occupy them, will the state of society most satisfactory to everyone be reached, and that the individual therefore, as a link in this great connection, must be unselfish in the sense of giving place to the more competent. Again, the new man will, as leader of the states, be wise enough to see that it will be best for all mankind that the large, thinly populated continents which are not sufficiently turned to account, are divided among the civilised nations according to their stage of intellectual development, technical capacity, organising power and wealth of population, for in this way only can the most intensive utilisation of our earth be reached for the benefit of all men, and in the face of this all petty egoism in the single nation must yield. The new man will understand that both in the life of trade and industry and in the intellectual life, objectivity and chivalry will alone be able to create the wholly right results. In the scientific life the barren self-assertion of polemics will then be superseded by an endeavour to find the truth by efforts in common, quite regardless of whether one or the other of the seekers proves to be right. So that in all spheres practical reasons lead to unselfishness.

This new type of human being, however, on whose victory the future of all mankind depends, is as yet only a minority, and when one knows life and men one knows that the new life together between the nations and between individuals will not be reached in a near future without *might* and *compulsion* being also taken into the service of the good forces. Large sections of mankind, both of individuals, of classes and states, can only be led to the brotherhood of the future by the way of discipline and suffering. On this way one will not always be able to follow the paradoxical commandment about loving one's enemies. Even the spiritual leader who uttered this commandment did not always follow it Himself, for with a scourge He drove out the traders in the temple of the Lord. Moreover the Christian religion recognises that authority does not wear the sword in vain. All state communities, both in earlier times and at the present day, have only been able to maintain law and order through punishment of the enemies of society, of criminals, that is, by causing them suffering. The same law books, which regard religion and law as the "two main supports and chief pillars, by which lands and kingdoms, in their continual flowering and prosperity, are strengthened and upheld", and which look upon the Christian religion as the true and right religion, say directly after that the law therefore ordains that they who "seek to injure their neighbour" and who "will not do right according to that which is written in the law,

can be held guilty and deserving of the punishment ordained by the law". There is, however, a certain truth behind the commandment about loving one's enemies. Experience sometimes shows that one can evoke what is good in a hostile person by requiting evil with good. The penal law does indeed in many cases, instead of punishment entailing suffering and intended to act as a deterrent, especially in the case of youthful miscreants, apply methods by which one tries to bring out what is good in people who have transgressed against their neighbour, and by means of suitable work and training to make them useful members of the community. The core of truth to be found in the paradoxical commandment may be thus expressed: that the individual towards hostile persons, society towards its enemies, one state towards other states, must try first how far it can get by rewarding evil with good. If experience shows that one does not gain anything by this method, then sterner methods must be used. Then the sword must teach the enemies of mankind justice or destroy them. In other words, one cannot generalise a certain method of procedure, either the mild or the stern one. Everything depends on the type of human being with whom one is dealing. There are a great many people who consider goodness to be a sign of weakness. Towards this type that method of treatment must be chosen which is recommended by Shakespeare in Hamlet: "Beware of entrance to a quarrel; but being in, bear't that th'opposed may beware of thee." Altogether that must hold good here which I have pointed out above: "Doing good to everybody at random regardless of quality or behaviour will not benefit mankind. It is injurious and against nature to want to force oneself to love the low human type, the hyæna and tiger in human shape. The teaching of Confucius is more correct than the commandment to love one's enemies. Once there was one who asked Confucius, also called the Master: "To requite wrong with goodness, how is that?" The Master said: "How then should one requite goodness? No, one must requite wrong with uprightness, but goodness must be requited with goodness."

A brotherhood among all men is a thing of the future. At the present day only one thing can be realised, and that is that the good must join together for mutual help and common resistance against encroachment and violence. In the closing words of Bjørnson's soul-searching drama, "Poul Lange and Thora Parsbjerg", Thora Parsbjerg says: "Why

The Persian sage Sadi expresses the same thought as Confucius in the words: "To show mercy to the evil is the same as showing injustice to the good. To forgive the oppressor is to use violence against the oppressed."

must it always be the good that become martyrs? Can we never get so far that they become leaders?" The answer to this is: "That will not happen so long as the good submit individually to being struck down by human beasts of prey, by those who engage in undermining and intrigue. That is the fate of the good in practical life, as workers in a trade or profession, as government officials or workers in an industry, etc. But the same fate also overtakes the small and great nations that do not wish any harm to others, but only to show justice to everyone. These people and nations will go on being martyrs, they will be defeated and oppressed until they all agree some day to join together, not in weak, ideological leagues, like the League of Nations and Uno, but in practical, organised armed coalitions, strong enough to force the predatory states, by the sword if needed, either to enter into the brotherhood of nations or to destroy them.

For the rescue of the human race from its present jungle state, with its internecine strife, physically, economically and spiritually, between individuals and between nations, a brotherhood is required between the good and among them a spiritual leadership or order of chivalry which, like the crusaders in the great ages of the Church, will protect, with the sword if need be, the weak who are pushed aside, "all those who are forced by violence", and carry out justice.

The brotherhood will not exclude the ideal contest to reach the very best. This free spiritual contest must always exist, because it is a means for the creation of new values. The characteristic feature of this contest is that, contrary to war, class struggles, polemics and the like, it is carried on without hate, in the same spirit of fellowship as the ideal contests of sports, and only with such means as this allows. Again we must go back to those great centuries when a purely spiritual power, the Church in the Middle Ages, controlled and tamed brute forces and we shall find the right word. The ideal contest between people and nations, which must be that of the future, must, like a good sports contest, be *chivalrous*. This word contains a strong ideal. It rests upon the idea of one who has an excess of strength in himself, strength both to control himself and to help the weak and rejected in the struggle of life and who, even in rivalry for the highest achievement, contends as if in a spirit of fellowship with those who are striving towards the same end, according to the common rules of an invisible law, and who unselfishly gives up his personal interests. The spirit of chivalry is one of service.

It is a well-known experience that the most perfect artistic result is reached in a play when each of the actors in it does not think only of himself and try to be prominent, but unselfishly takes the place allotted to him in the whole, the ensemble, and quietly works on the plane required by the play when acting in company with the others. Exactly the same thing occurs on the great stage of mankind, in the association between men and states. All the evils and misfortunes under which men suffer are due to individuals as well as states wanting to play a greater part and seize a greater place than they are entitled to by their ability, character and the social plan as a whole. It must therefore be said, looking soberly at the facts, that the future of mankind depends on whether the new type of human being, which is now only a minority, gains the victory, whether the spirit of self-control, chivalry and unselfishness will get the power over the minds of men.

The new empirical ethics and theory of law is, as will be seen, not only an ethic of *means*, but also of ethical *aims*. As the ethical object of medical science is the physical health of man, so the object of individual ethics is man's spiritual health and satisfaction in the widest sense; and the object of social ethics is the best possible ordering of society for this object. The object of social ethics is derived from the object of individual ethics. Man is not made for the sabbath, but the sabbath is made for man. Similarly, man does not exist for society, but society exists for man. No reason can be given for the contrary view maintained by certain dictatorial states.

1. The ultimate aim of ethics, when all the moments of life are summed up, is the attainment of the individual human being's pleasure or lasting satisfaction in the widest sense and the avoidance of pain. Even the most life-denying thinkers, like Augustine and Buddha, build in reality on the same valuation, when holding the view that human life is so full of grief and suffering that it would be best for man's life to end. For here the ethical aim is the avoidance of pain, the cessation of all human suffering. So that neither do these negative views lead us outside man and the purpose of his life.

This purpose, the welfare of man individually, leads us to the law of character. It also leads to the law which I have called the social law, for no man can seek the deepest satisfaction in peace and security if all men do not follow that law, that they do not injure each other.

2. Furthermore, the purpose can also be a reason for men to help each other in need; this is a kind of mutual insurance to protect them against accidents; and this is, in fact, the basis of all modern legislation on insurance against illness, disablement, unemployment and old age without means of subsistence.

3. Next, however, in view of the aim being the greatest satisfaction of men individually, as pointed out above, it may be possible to reach that state of social unselfishness which will cause the regulating and leading positions in the community to be filled by those who are fitted for them by their ability and other qualities, for if this law is carried out it will benefit everyone; this reality is, in fact, as shown, only a part of the social law, for when the positions are filled without consideration of capacity or quality, it injures, directly or indirectly, all the members of the community.

On the other hand, one cannot, as we saw, in view of the object arrive at the utilitarian principle that the individual must work for the greatest possible quantity of feelings of pleasure in the greatest possible number of people, without regard to their quality or behaviour towards oneself. The individual has fulfilled that which may be called his ethical duty when he avoids injuring his neighbour and helps him in need. Beyond that, whom he will love, and for whom he will sacrifice himself must depend entirely on whom he is particularly attached to in life, or with whom he feels the closest affinity, mentally or spiritually.

4. Here individual ethics fills up the social one. Love of human beings is among the highest forms of happiness, in countless instances it leads men to sacrifice themselves unselfishly for others, namely for those they know and love. And it must be emphasised that in itself it is felt to be a state of individual happiness, as a particular satisfaction to be kind and helpful towards the large number of *unknown* people, that is, at the whole of that stage in which their bad qualities have not yet become evident, or in which they are really good and helpful people themselves.

5. Lastly, it must be pointed out that if an action, an invention, a system or an institution has effects in extensive unknown circles of mankind the leading principle of course must be that the said action, invention, system or institution shall be beneficial to these great circles or to mankind as a whole. That is the interest of all.

CHAPTER 14

THE ULTIMATE SYNTHESIS. THE WORLD AND THE LIFE OF MAN.

From the natural sciences we obtain a knowledge of external, physical Nature, and from the sciences of the mind a knowledge of the internal, psychical world; but none of them gives us a comprehensive survey over Nature in its entirety, the ultimate synthesis. The theory of knowledge, which ought to be the common part of all sciences, shows us, that all science or knowledge stops at this very fundamental opposition between the physical and the psychical as ultimate, irreducible, inexplicable phenomena. What the physical, i. e. external bodies and their movements are, we do not understand. We observe differences and similarities and law-bound interrelations between these bodies and their movements, but whether this knowledge gives us a knowledge of the world in itself we do not know. Whether there is something else behind the external bodies and their movements, and what this something is, we do not know. The only place in the universe of which we do know that there is something behind the material processes, and what is behind them, is the life of man. Behind man and the material processes in his brain cells there is something besides movements in space, namely the phenomena that we call psychical perceptions, ideas, feelings, resolutions of will. This psychical world has arisen during a gradual process of development in the material universe. There is, in the quantitatively vast world-space a phenomenon infinitely small in relation to it: that is, matter. From this has arisen a new phenomenon, quantitatively still far smaller than matter, that is, life. Its rise cannot be explained mechanically, that is, from bodies and their movements; besides we do not understand the latter either. Next, life passes from its rise through a series of changes which we call development. Neither do we understand in what this consists nor what it really is. The influence of external circumstances on the living

organisms does not suffice to explain the development. During the latter new types arise at intervals, by fits and starts. Here new qualities, new forms of life arise in an inexplicable way from the interior of the universe, and in their co-operation with their surroundings certain types subsist while others disappear. Hence new types, continually higher, arise during the development, higher in the sense that they are better able than the others to control the material universe around them. The entire organic development is reached by the highest type in man, who has understood how to make all other organisms, plants and animals, serve him, and has even to a wide extent attained to the control and exploitation of the inorganic, material universe. The reason why he has succeeded in all this is due exclusively to the development of a new quality in man, the life of the spirit. This marks the boundary line between man and the preceding stage of organic life, the animal. The spirit, again, is something new in existence and signifies the dominion of the higher being over its own material urges and the creation of entirely new values. Man's power over himself has been the condition for his power over the natural world around him. An animal instinctively and slavishly only follows its urges, and hence never gets outside a small, limited circle, determined by habits of a reflexive kind. By this strange new quality, however, the power over himself, by compelling himself to carry out systematic work, and by other forms of control, man has subdued the earth to himself. The distinguishing marks of civilised man are: character, society, science and art. These cultural values would never have come into existence without the dominion of the spirit over the animal in man. But, as the foregoing has shown, there is still a long way ahead before the spirit has obtained perfect dominion over man, and with it over the world around us. The wild beast still rules in a countless number of human beings. So long as men kill and mutilate each other in wars and outside them, so long as they compete their fellow men to death in industrial, commercial or professional life, or exploit those in their service, so long will it be before the spiritual man has become the dominating human type. As I have tried to show in the foregoing, it is above all unselfishness and justice, instead of hatred of one's neighbour, that is required everywhere in the life of man in order to obtain the right solutions, both in the government of the State, in the life of industry and trade and in intellectual life. Not until this unselfishness and justice has been reached will that complete harmonising of forces be attained, that brotherhood of working in common which leads the powers of the highest quality on to

a full use of them in the interest of all, and to the right distribution of the benefits. Unselfishness and justice among men denote the greatest dominion man can obtain over himself, and on them depend the highest satisfaction that mankind can reach. Since its infancy and the dawn of civilisation and down through the ages the best among men have dreamed of a society or a realm that would one day arise upon earth as a world of understanding, goodness and beauty. This dream will never become a reality unless the just and unselfish man, from being a rare type becomes the general one.

But however far most men are from this society of the future, there is an élite of mankind which through a development of thousands of years has already created a new world in science, society and art. Out of the material universe, then, a world of the spirit is fighting its way onward, and the best among men feel that they are its servants. This realm is not external; it is not to be reckoned in terms of quantity; it is the smallest of the small in the mighty universe and its masses of material, and even in the world of living organisms, nay, even in human life those who belong to the realm of the spirit are but few in number, a little company fighting against the selfishness, violence and lack of sense of the masses. But in spite of everything, in spite of its smallness in comparison with the masses, this élite has fought through thousands of years, like a troop of chivalry, now with the sword, now with the word, the beast in man and forced mankind upwards and brought it under the power of the spirit.

The religious ideas are symbols which seek to express this spiritual power and its kingdom in beautiful imagery. But when these ideas are made into fixed religious dogmas, which try to establish intellectually the relation of the kingdom of the spirit to the material universe, in particular in the relation of causes to the latter, such as dogmas about creation, omnipotence, and the like attempt to do, they are just as mistaken as the speculations of philosophical systems about them. They are all little, narrow ideas about questions which are above all human comprehension, and outside all interrelations of causes, time and space. And they only lead into further, narrow-minded arguments about the "cause" of and the "responsibility" for the imperfections in the material universe, idle questions beyond all human ability to solve.

These hopeless attempts at explanation are, moreover, unnecessary. It is not the vast, material universe which gives value to the life of spiritual man, but that light alone which is thrown upon man's life from the

exalted world of the spirit, which has arisen in an inexplicable way and fought its way forward in this universe.

If we look at the material universe alone, it must be admitted that the life and destiny of man often seem to be the sport of circumstance. No doubt there is a law-bound regularity in the material universe, but this universe and its law-bound changes seem to be indifferent to human destinies. Catastrophes, sufferings, sweep down upon human life with the same conformity to law as events which are favourable to it. It is true that man has in the course of time, aided by scientific and technical development, learned how to avoid most disasters due to forces of Nature; and many sufferings are caused by men themselves, partly because of their own lack of self-control, and partly because of bad social organisation and selfishness which prevents each individual human being from getting his just deserts. Nevertheless, even if these evils can some day be abolished, certain inevitable sufferings remain in existence itself, and they seem to be inseparably attached to all life. Buddha saw the nothingness in man's efforts to reach happiness, because after all he cannot abolish the three fundamental sufferings: disease, old age and death. It is true that science tries to a certain degree to end off these evils too. But even if modern medical science has been successful in combating diseases, abolished some of them and lengthened life considerably, a Scandinavian writer has been right in saying, about the thought of even a very long life: "the fact alone, that death exists, annihilates even the longest life." And it is indeed death which appears to most men as the great negation of all sense in life, as that which robs them of those they love and destroys their dreams and hopes. Lamartine says: "Swiftly flowing Time, as with a shroud, hides us in the shadow of oblivion, all of us, our pride, our sorrows and our joy."

Swiftly flowing time and death conflict with the deepest needs of the soul of man, the need of constancy and eternity. This need is expressed in the most varying ways in men, both intellectually and emotionally. Plato's ideas of the everlasting behind the changes and inconstancies of the world of sense; the eternal atoms of Democritus behind the swarms of manifold changes of the external world; Spinoza's only, eternal substance of the all, express in different ways the same longing for eternity. The ideal of sociological thinkers has at all times been a stationary, happy society with as few changes as possible. Spiritual man will always seek a lasting, fixed state of harmony and peace. Augustine says: "Our

heart is restless till it finds rest in thee." Buddha regards Nirvana as the highest state because it brings perfect, everlasting peace which nothing can disturb, the perfect freedom from all the storms of passion and life. unrest of desire. The wise can already reach this state in the present life.

Thought and religion thus give expression to the same need. Man is a paradox, an existence of an ephemera with a longing for eternity.

This need of unchangeableness, of eternity, is not satisfied in the material universe. Matter undergoes incessant change, movement, and man, with the material part of his nature, is subject to the law of change and corruption. The material part of the universe, however, is only one part of the world, and we do not know the innermost core of this part. Ancient Indian philosophy regards only the inner world, the invisible world of the spirit, as reality, while the outer world is merely as it were a veil over the true reality. In this idea there is that core of truth, that while, most deeply considered, we do not know the material world, what it is in itself, we have, on the other hand, an immediate knowledge of the inner, spiritual world, namely in ourselves, quite regardless of our not knowing either the origin of this world, nor the meaning of the laws that govern it. We know nothing of how the spiritual world is related to the unknown, material one, nor do we know what death means to the spiritual part of man. We only know that spiritual man is a link in a greater coherence than shown to us by physical nature. In regard to the material universe which he does not know and does not understand, man feels that there is a world of which the inmost core is strange to him, "that he belongs elsewhere." Man only feels at home in the world he knows, in the world of beauty, understanding and goodness which arises in man himself, and which comes from invisible, unknown regions. As Goethe says: "In ordinary life much depends on choice and will. But the best that happens to us comes—who knows whence?" It is only the invisible kingdom of the spirit that makes life of value to man. Only by choosing and belonging to this kingdom, wholly and unconditionally, does man feel raised above the accidental. He often feels as though a ray of the sun had shot across his life from another world, and that there is a deeper meaning in what happens, just as certainly as the development of mankind's life towards higher spiritual forms has not happened or does not happen accidentally, but as a link in a vast chain, incomprehensible to us.

The religious symbols may change, but that mood of life which they try to express, and which is the core of all religion, will last. That light

in which man beholds his life in the coherence of existence, and his feelings towards it, is the ultimate synthesis. Spiritual man can only see his life in the light of that which gives value to life, the spiritual power in existence. He feels that he has a responsibility for his life and its deeds towards the spirit; he feels that when he fails this he fails the best in his nature and loses the deepest satisfaction in life. He feels that here he meets the uplifting and eternal which he must serve, while everything else in the material world is change and decay.

NOTES

Notes for page 19-33.

From the works of the presocratic Greek nature-philosophers, *Thales, Heraclitus, Democritus* and others, only fragments are extant, together with occasional comments upon their teachings by later authors. On the nature-philosophers see *Gomperz* I 36-204, 254-306, *Deussen* 33-145. On the Sophists and Socrates see *Gomperz* I 331-96, II 3-112, *Deussen* 147-189, *Wundt* I 251-70, 349-89. One of the most promient Sophists, *Gorgias*, expressed his epistemological theory of negativism or nihilism as follows: (1) Nothing is (exists); (2) Even if anything existed it could not be apprehended (cognized); (3) Even if anything existed it could not be communicated to others. Socrates was in agreement with this epistemological negativism so far as the external was concerned, declaring that he know nothing of nature's inmost being and understood nothing of the cognition of nature; but he positively maintained—as referred to in the text—the possibility of apprehending the inner world, the self, and the ways leading to its welfare, i. e. the virtues; and that this apprehension could also be communicated to others. The teaching of Socrates we know partly through *Plato*'s Dialogues and partly through Xenofonus' "Memories". However the ethics of Socrates as rendered by Xenofonus often represent a rather shallow utility-teaching, for instance: You shall cultivate friendship because a friend is the most useful possession. Moreover Xenofonus is rather longwinded in his exposition of the obvious.

At the time of Socrates democratic rule in Athens had been carried so far that even the election of officials was made by casting lots; this, of course, often resulted in quite inefficient, unskilled men being elected to important posts. This state of affairs was the object of constant attacks by Socrates; he wanted it replaced by an official government consisting of experts, of the best men.

In his main ethical work "The State" (Policia) *Plato* at first examines the concept of justice as the basic idea for the community, (in volumes

1-4), as mentioned above p. 27. But besides this basic conception of the ethical main problems, and other views mentioned in the text, he sets forth in The State a number of opinions on many social questions. Part of these opinions now seem antiquated because they assume the special structure of the ancient Greek society, and others belong in the world of Utopia. Here we may mention Plato's division of Society in the ruling class, the warriors' class and the commercial class; according to his idea the two first classes are to live in a sort of communism of fellowship as far as property, family, women and children are concerned, while the right of private property, family relationships and their jurisdiction shall be valid only for the largest class of citizens, the commercial. The first class, the guardians of the state are not permitted to own fortunes; they shall not be tempted by greed and led into corruption, often consequent upon the possession of private capital. Therefore they shall live on wages, paid by the remainder of the community, just sufficient to cover their needs during the course of the year, Nor shall they have wives; to a certain extent they shall be sharing their women, and at birth all children of the ruling class are to be taken from their mothers and brought up together, „The State" vol. 4. Book 3 p. 140, V p. 28 seq.

In one of Plato's later works "The Laws"—no doubt written mainly after he had had certain discouraging experiences in politics (as the adviser to the rulers in Syracuse)—he changed his opinions on sundry points. He now realizes that a great deal of what might seem an ideal arrangement is impracticable. Still, on several main points he maintains his opinions from „The State". For instance, he upholds his demand for the best men, the most efficient, to rule, „The laws", vol. 9 p. 102, 125-30. Here too the criticizes democracy but also sharply denounces tyranny, the absolute monarchy which easily becomes arbitrary and fortuitous when it falls into the hands of an inferior, conceited ruler, vol. 9 p. 104 seq. But he speaks for a strong government. The state must lead the people spiritually through education and propaganda for the beautiful and good: artists and poets are not allowed to present whatever they please. What they present and what they teach must be ethically right and the legislator has to make rules for them, vol. 9 p. 55-62. As the state has to lead the spiritual life it must also direct the commercial life through a strict plan-economy, a professional, classified labour-division where the different trades are taken into account, vol. 9 p. 140 seq. 289-90, vol. 10 p. 85-93.

As a whole, in his main demands on the government of the state and in certain special social questions Plato was ahead of his time. In his

opinion, talented women ought to be able to obtain official posts when they were suited to them; he speaks for a thorough system of eugenics: The state ought to exert a strong control of procreation in order to improve the race. The guardians sharing their women by no means meant promiscuous mating, on the contrary, sexual relationship was to be severely controlled by the state in order to improve the human race, vol. 5 p. 17 seq. (The State).

We have seen that the education of the rulers of the state according to Plato ought to be very careful (this he expatiates upon in the 3rd and 4th book). At first the rulers-to-be had to undergo a thorough and versatile scientific education until their 35th year; simultaneously their mind and character were to be developed—through poetry, music and physical exercises. After their 35th year they were to partake for 15 years in practical life and public affairs in order to learn how to transfer scientific thoughts into practical action. Finally, at the age of 50, they would have reached a general spiritual and practical ripeness and might be trusted to take over the government of the state. (see The State vol 5, 6th book 76 seq, 7th book 105 seq, 8th book 125 seq).

Like Socrates, Plato looked with pessimism on the development of democracy in Athens and the other Greek states. Contrary to the individualism prevailing under democracy where everyone could please himself, Plato claimed the necessity of restraining the individual. In opposition to the pursuit of pleasure under individualism, he pointed to discipline, the care of the soul. According to Plato the democracy in Greece must end in tyranny, dictatorship—the form of government that Plato most despised. The right state was to be the right medium between the despotism of the Persians and the unlimited liberty of the Athenians. A fine state must rest on three basic pillars: Liberty, wisdom and love. The Persians lost freedom and love and the Athenians lost the wise restraint and loving veneration; this meant the downfall of both peoples.

The basic ethical ideas of *Aristotle*, as above mentioned, are found in Ethica Nichomachea, p. p. I seq, 9-40. On the spiritual joys which are to be derived from the so-called higher senses and the intellectual life, see 69-71. Time after time Aristotle reverts to the problems of virtue and vice, lack of renunciation and self-control, and to the distinction between the so-called higher and lower pleasures and joys, see Aristotle, p. p. 167 seq, 176, 177, 182, 184, 187, 189-90, 257-275. His teachings on the virtues as the only right middle in all conditions of life—called the golden mean by later times—are explained in sundry places, rather too extensively, see p. p. 37-53, 70-78, 85-95, 102-113, 128, 145. The ethics of

Aristotle, taken as a whole, are anything but systematic; time and again at long intervals he comes back to the same themes, on some of them, especially friendship, his exposition is somewhat lengthy (334-355). On the other hand, we should emphasize that in this book Aristotle besides the profound expositions upon the basic ethical problems—as mentioned above in the text and here— gives contributions proving his deep insight in human nature and life, see 1-12, 96-102 on generosity—188—on stubbornness—and sundry remarks on friendship, 203 seq, 223 seq.

See *Deussen* II 348 and *Wundt* 95 on the connection between the epistemology and the ethics of Aristotle.

Aristotle gives contributions to jurisprudence too. Laws are necessary and must be enforced because the nature of the masses cannot be directed through their sense of honour, but only through fear. Passion does not give way to reason, but only to force, 280-83. The legislator must also punish persons who are ignorant of the commandments of the law; people ought to know the laws, if they are not too complicated, 67.—Justice is the virtue of creating and guarding happiness and its blessings for the community, 116. Aristotle differentiates between harm done accidentally and harm done inadvertently—where harm is to be expected but is not done by mischief—and finally harm done by a desire to harm or on purpose, the act being the result of a deliberate, willed choice, 134-35.

Finally Aristotle distinguishes between positive right and natural right. The natural right being valid for all people would be the ideal right, 131-32.

The works of *Epicurus* and other Epicureans as well as of *Zenon, Chrysippos* and the remaining Greek stoics exist only in fragments, besides mention in later, especially Roman writings.

Furthermore see *Gomperz* II 203-533, vol. III, *Deussen* II vol 216-394, 394-338, *Wundt* vol. I 421-535, vol. II 88-299 on Plato and Aristotle, the Epicureans and the Stoics. On the Sceptics see especially the last mentioned work, vol. I 300-11. Among the Sceptics *Pyrrhon* and his pupil *Timon* as well as *Karneades* must be specially mentioned.

Page 44-60.

Hume also shows a considerable historic understanding as regards the origin of the power of government; he remarks that the first embryo of government, the election of a chief, did not start by fights between members of the same community, but through fights among different communities-races; while fighting an enemy from the outside they had to

choose one man as chief, entrusting him with great power. Hume emphasizes that though loyalty to the government originally began with a silent or spoken oath of obedience to the chief, later on it does not depend upon such a promise but upon man's selfish interest in the maintenance of a strong government. We maintain the government because it is necessary for our own good. Our interest in obedience to the civil authorities is different from our interest in the keeping of promises. Even if promises did not exist in this world, a government would always be needed in a civilized society. We keep our promises in order to further reciprocal trust in the community, but we create a government and obey the civic authorities formed by them to keep order and unity within the community, Hume II 304 seq. cfr. 263.

Previous to Hume a few English authors have sporadically commented upon moral-philosophical ideas related to those of Hume. But not before Hume do we find the profound and systematic treatment of the problem that lies only in the power of a comprehensive mind. *Shaftesbury* (1671-1713) accentuates the significance of our feelings and instincts in our moral judgments; he maintains that an instinct ties the individual to his kin, and that man never was able to survive outside the community; it is therefore a mistake to place a so-called natural condition opposite to a social state. His opinion is opposed to the contract-theory of natural right; according to this Society originated in a spontaneous, conscious union between independent individuals. *Francis Hutcheson* (1694-1747) also stresses the significance of our feelings in ethical judgments.

Rousseau's conception of the origin of Society and government in his book "Contrat social" is strongly influenced by Locke and Hume, cfr. Rousseau 236 seq. 243 seq., 304.

Moreover Hutcheson maintains as the goal "the greatest happiness for the greatest number" in his work of 1725, and so far he is ahead of *Bentham*. Also before Bentham *Beccaria* accentuates in his work on Crime and Punishment (1764) the basic idea of the greatest happiness for the greatest number as the aim of all jurisdiction. His work greatly influenced the development of justice, as far as criminal law went, through his suggestions for human reforms of the medieval, barbaric criminal jurisprudence prevailing in the European countries of that time. On the other hand, the naturalist, *J. Priestley*'s "Essay on Government" where he maintains the same basic idea, was published later than the works of the two last mentioned authors, namely in 1768; like Bentham he is also influenced by them.

Characteristic for *Bentham*'s application of his idea: "the greatest happiness for the greatest number" to the question of the division of capital is a note including an answer to the lawyer Wedderburn—later Lord Loghborough, Chancellor of the Exchequer. He had criticized Bentham and pronounced his idea dangerous. In his answer Bentham told him that without doubt this idea was dangerous to people like Wedderburn who by virtue of his positions as both Attorney General and Chancellor received incomes of £ 15 000 and £ 25 000 a year; such an enormous income no doubt was at variance with the idea in mention.

Bentham's ideas of definite reforms often proved profitable and practical, whereas his direct propositions for important laws, codifications and constitutions were abstract and unpractical; this was due partly to his insufficient technical judicial insight, partly to his lack of personal contact with the controversies of practical life.

Ihering's book mentioned above: "Der Zweck im Recht" (vol I 1887 and vol II 1883) has the motto: „Der Zweck ist der Schoepfer des ganzen Rechts" ("The purpose is the creator of all law"). Illucidating the relations of the individual to the whole, Society, Ihering employs a simile: Countless small beings, invisible to the human eye, infusories, are able to create a mountain of chalk; in the same way a multitude of people, in their selfish belief of serving their miserable, perishable egos, are building the colossal human world, Society and its works; proportional to these, the individual is but as a grain of sand. The infusory is egoism--knowing and wanting to know only itself—yet building a world, I 34. This image is apt to give a wrong and unjust impression of the relations between the individual and Society. Ihering forgets what Kant taught, viz: the individual shall be treated as the purpose and not as means to the achievement of other purposes. We also have another wise saying, that man is not created for the sake of the sabbath, but the sabbath for the sake of man. The sabbath may be used as a symbol for the demands of Society. Ihering's perception of the relation between the individual and Society is furthermore dangerous, because on the basis of his idea the great powers and their world-wars for the sake of power were created.

The above mentioned work by Ihering contains valuable remarks upon the notions of cause and purpose, use, self-preservation in relation to the spiritual basic feelings desire and pain, and upon jurisprudence. However, in certain ways it is, so far as I can see, a rather inferior book and in no way to be compared to Ihering's historic-philosophical main work: "Geist des römerischen Rechts" or to his essays on special subjects of the Roman law. His work: Zweck im Recht, first of all is much too lengthy,

containing, besides valuable expositions, a great many general considerations and obvious statesments, as for instance: "Aequivalent ist die Verwirklichung der Idee der Gerechtigkeit auf dem Gebiete des Verkehrslebens" or "die Konkurrenz ist die soziale Selbstregierung des Egoismus", 103, 104. Many of his opinions seem antiquated, like the one here mentioned on free competition—after the enormous development of the trusts and cartels during the 19th and 20th centuries. Ihering also exposes extensively upon themes such as rank, orders, officers' marriages, I 150-61, and upon decorum and courtesy and their mumual limitation, also offensiveness and its sundry lower categories etc., II 280 seq, 322-76.

Among the other German authors who throw light upon the ethics of purpose and maintain one highest, ethical purpose superior to all other purposes we shall mention *Fr. Jodl*: "Allgemeine Ethik" published 1918, and "Geschichte der Ethik" 2nd edition 1906-12. *Fr. Paulsen* gives in his book "System der Ethik", 2nd edition 1891, a criticism of Hedonism and of Mill's Utilitarianism maintaining one highest ethical blessing which is not pleasure or the quantity of pleasure attained. However, also these writers fall short in respect of a thorough epistemological examination of the notion of knowledge and of the question of ethics being knowledge, science, and in how far this science can be proved.

In Northern Europe *H. Høffding* has yielded the best exposition upon ethics on a Utilitarian basis in his "Ethics", 1887, 4th edition 1913.

When in the 19th century the theory of evolution made its appearance there also arose tendencies to combine the point of view of Utilitarianism with the new biological experiences as set forth and explained by Darwin and others. A number of writers were trying to state the existence of so-called biological ethics, i. e. teaching that ethics in reality serve to maintain and promote life and that evolution at its peak must tend to preserve and promote life as a whole, meaning not only the life of the individual but also the life of the human race. Good is life-promoting, evil is harmful or destructive of life. Simultaneously they maintain, more or less clearly, that the lifepromoting, taken as a whole, means promoting delight and happiness. We find these ideas expressed for instance by *Herbert Spencer* in: "The Principles of Ethics", 1892, by *W. R. Rolph*: "Biologische Probleme zugleich als Versuch zur Entwickelung einer rationellen Ethik", 2nd edition 1894, by *J. M. Guyau*: "Esquisse d'une morale sans obligation ni sanction", 1896. However, these writters have not succeeded in clarifying the relationship between the promoting of life and the yielding of delight, nor the relations between the notions of development and progress. Spencer all the time is using the notion of

"more developed" as tantamount to "higher". But *Moore* is right in his remarks that this is an unwarranted combination. It can never be taken for granted that development through the survival of the fittest is equivalent to the best, the ethically highest type being the victorious part, Moore p. 45 seq.

Utilitarianism and other similar philosophies attempt to build up morals on experiences of pleasure and displeasure including what is considered the most beneficial to man in the long run, i. e. resulting in the greatest sum of pleasure and the smallest sum of displeasure. This result is often described as: the supreme good or the supreme value, and these ethics are therefore called *Ethics of Value.*

Within Philosophy we also find views pronouncing that morals cannot be motivated through experiences, that the basic notion in morals is not happiness or pleasure, but the notion of *duty*; duty and the meaning of duty are a priori elements of our mind and elements above and beyond all experience. The most important representative for this philosophy, *Ethics of Duty,* is *Kant,* see above pp. 55-56. His main work is here: Kritik der praktischen Vernunft, 1788. To the universal a priori principles of knowledge, in his book: Kritik der reinen Vernunft, 1781, correspond the universal a priori principles of morality in: Kritik der praktischen Vernunft, 1788. *Schopenhauer* is probably right in his remarks that in accordance with Kant's love of architectonic symmetry, theoretical reasoning must have a parallel in practical reasoning. But another and perhaps more essential motive of Kant's for this coordination no doubt originated in his innate, profound veneration for the moral commandment and his deep belief in the supremacy of the moral laws; in accordance with his disposition these laws could be derived only from the Absolute, the a priori, eternally raised above the vicissitudes of the world of the senses and its fortuitous experiences. There can be no doubt, that Kant's moral teachings in Kritik der praktischen Vernunft from a purely human point of view have been of the greatest signifiance to the spiritually alert part of the German people at the end of the 18th and the beginning of the 19th century by virtue of its profound fervour and severe demands on the individual and its high idealism. But scientifically Kant's moral teaching must be considered weak. And so it probably is, apart from its connection with his theory on epistemology. The universal moral law as taught by Kant, must be purely formal—just like the forms of pure reason, space, time, quantities etc.—isolated from emotions and sense impressions. But the moral law must be the motive of actions. However, psychologically a purely formal law of reason is precluded from being

a motive of an act. The motives of our actions are limited to our emotions, desires etc. In general Kant admits this. But he thinks that the mere thought of the universal moral law inspires in us a veneration of it. This veneration of or respect for the law is, according to his opinion, a sentiment not to be explained through experience; it is neither pleasure nor displeasure, it is cold and devoid of good-will toward man, a purely abstract interest inspired by the supremacy of the law within us, and this veneration must be able to activate our volition. In reality such a motive is quite inexplicable; it is at variance with Kant's own opinion that the rule of causality is valid for all phenomena, internal and external. The said veneration cannot be explained by causes in the world of phenomena, Hoeffding II 83-84. As far as I can see, long before Kant, *Hume* has really proved the impracticability of an opinion like that of Kant's. Hume remarks: No action can be virtuous, or morally good, unless there be in human nature some motive to produce it, distinct from the sense of its morality, II 253. Here Hume is in opposition to the opinion of his English predecessors in moral philosophy, especially Hutcheson, claiming that the moral virtues spring from a moral sense, which cannot be explained through experience, and must be grafted into us from elsewhere (God), appearing as a purely spontaneous instinct. Actually this moral sense is identical to the one we meet with later in the same century, in Kant's pure respect for the moral law which can not be explained through experience. This whole unpsychological perception of acting morally from a moral sense or from the regard to virtue—Kant's respect for the moral law—Hume knocks down in the following conclusion: Something quite different arises when humanity has arrived at a tacit agreement to observe the rules of moral and justice; when these become fortified by a feeling of sympathy for those brought to suffer through the disregard of morals and right and through a lack of education, then at last we may experience a feeling of gratification because of doing our moral or juridical duty—help our neighbour, pay back loans, keep our promises, respect the other man's property etc.— But then it is also clear that "a regard to virtue" or to "public interest" is not the first and original motive of our moral and juridically just acts, Hume II 258 seq. 270-73.

See *Schopenhauer* I 596 seq., *Stuart Mill* II 4-7, *Høffding* II 69-85, *Rashdall* I 108 seq., *Moore* 128 seq., *Carritt* 76 seq., *Perry* p. 17 seq.

The moral laws show man's faculty for making laws, rules for his own actions. According to Kant theoretical reason is engaged in defining what *is*, to be—Sein, while practical reasons aims at defining

what must be—Sollen. This distinction has since played an important part in German philosophy.

Kant's basic idea on ethics contains a good deal of mysticism originating in a certain vagueness in his epistemology. Das Ding an sich, the inmost essence in all things, lies, according to Kant, beyond the limitations of our cognizance; we apprehend only the manifestation of things, the world of phenomena and the methods of apprehension of our mind (space and time) and the categories (notions of quantity, causality etc.) i. e. the a priori elements are only valid in this world of phenomena. Consequently the same assumption should be applied to the basic moral law. This moral law should in this instance stand parallel with the law of causality. Nevertheless, just because of the moral law, Kant assumes that man is a member of two worlds: man moves in the world of phenomena, the changing world of his senses; by choosing and submitting himself to the moral law, man, as a part of the inmost essence of things, das Ding an sich, makes implicit laws for himself as links in the world of phenomena. But this seems both obscure and inconsistent.

Kant himself believed through his examinations of our epistemology and the limitations of our cognition to have succeeded in putting a stop to all speculative philosophical systems. In his critical attitude towards these he never forgot what he had learned from *Locke* and *Hume*. But the weak points in Kant's epistemology especially the notion of das Ding an sich, and the teaching on the matter and forms of reason, in times to follow gave rise to sober criticism and also made way for the speculative philosophical systems, especially those of *Hegel* and *Schelling* appearing during the first part of the 19th century. When later in the century the unsatisfactory and scientifically untenable in these systems was comprehended the trend of ideas quite naturally turned back to Kant. Within this movement of a return to Kant—taking place during the last half of the 19th century—one group is especially prominent; it may be called Newkantianism in a more restricted sense or critical idealism; it also carries the name of the Marburg school, because its two most significant representatives, *Hermann Cohen* and *Natorp*, taught at the University of Marburg. Newkantianism admits that Kant's epistemology contains certain weak points, especially Kant's teaching on the notion of das Ding an sich and his inconsistent views on sense perception qua the element of cognizance. But Newkantianism maintains that Kant's basic epistemological view is right in proving the limitation of our power of apprehension: our forms of apprehen-

sion, the condition for our faculty of apprehension, are innate in us, are a priori; theerfore both the speculative systems, as those of Hegel and Schelling, and the naive materialistic naturalism which arose during the 19th century under the overwhelming influence of the development of natural science, are alle of them untenable. Our a priori forms of cognition are universal for all experience, because we can only have experiences within these forms; on the other hand, our cognizance is limited to the world of phenomena and teaches us nothing of the world's inmost being; all conceptions of it are but empty speculations. On *ethics* the basic concept of Newkantianism is the same as that of Kant, although Newkantianism employs different words and notions from those of Kant, just as the different philosophers within this group use alternating words and ideas. In accordance with the opinion of Kant these philosophers consider pure reason valid to and universal for the multitude of alternating, vastly different sense perceptions; reason lies over and above these perceptions, but is universal for them (the oft mentioned laws of space and time, causality etc) and is thus valid for all these numerous alternating, different desires, standing aloof from the contents of these desires, a pure, practical reason or a moral basic idea or basic law exists, which is also valid for all perceptions and desires of these categories. Any proof of morals derived from investigations of our experience, such as utilitarianism and similar groups try to employ, is superfluous, because the basic idea on morals is valid beforehand, a priori, for all experiences, instincts and desires in this category, in the same manner as time and space etc are valid for our sense perceptions. However, the nature of this a priori, moral basic idea or category is, as mentioned, exposed upon in different words and ideas by the various Newkantians, Herman Cohen, assuming Kant's teaching on the free will making its own laws, operates on a basic notion by him named the pure will, which is supposed to be a parallel of the pure reason and the a priori basic notion in the sphere of morals. But as to the nature of this pure will, Cohen employs very vague and indefinite terms, see *Cohen:* Logik der reinen Erkenntniss 1914, p. 357 seq. and Ethik der reinen Willen, 1907, p. 177 seq. *Natorp,* also assuming the basic notion of the free will, gives as the characteristic of this will its ability to aim at a set purpose. Which purpose I am setting myself is the ethical basic notion. Man is not only a mechanism of nature, determined by the laws of nature. Man has a free will, i. e. a gift of being able to set a purpose for himself. The laws of nature, especially the law of causality, direct man to recognition, to establish what *is*

(Sein), but the law of purpose teaches him what he *must do* (Sollen), how the ought to act. Thus two kinds of law exist, the law of nature and the law of purpose; the law of nature is the great factum in natural science, the law of purpose the great factum in humaniores, particularly in jurisprudence; but these two laws are fundamentally different and one cannot be derived from the other. All laws of nature show various groups of phenomena co-ordinated as causes and effects succeeding each other in time. In the law of purpose the different links are subordinate to one another, are means in relation to purpose. While cause determines the effect, purpose determines the means. Purposes cannot be based upon empirical grounds. From what is we can never educe what shall be. Natorp solves the question: Das Problem des Sollens through his basic opinion that the unity of existing matter is the highest goal of cognition, the law of laws; and according to this, the unity of purpose must be the foremost basic conception of ethics. Everywhere in mental life we meet conformity with the laws of nature: laws on quantities (mathemathical laws), laws on succession in time of events (laws of causality or laws of nature) and finally the laws of purpose. All these laws point to and originate from the primeval law of conformity. A highest, absolute purpose must exist, the origin of all other purposes, and deciding the implicit demands upon our actions. This highest concept of purpose, the necessary universal, a priori form of all action can be but conformity itself. Our actions must be expressions of the universally valid. The categorical imperative of Kant, commanding our actions to be expressions of a universal law built upon this basic idea, shows the highest, foremost purpose of ethics. This formal law within ethics is co-ordinate with the notions in epistemology. The pursuit of laws, of unity, is the essence of reason. As is the case in epistemology we may also in ethics distinguish between matter and form. In the sphere of ethics matter consists of the many actual expressions of action and will; but they are subordinate to the universal law of form. But not solely the aims of the different individuals are concerned when a unity is to be created, but the aims of all individuals must be subordinate to the same law. The aims of Society are the universal aims of each and all individuals, see *P. Natorp*: Die logischen Grundlagen der exakten Wissenschaften, 1910, p. 49 seq., and Sozialpädagogik, 1909, 35 seq.

The conception of purpose as a basic idea of ethics and the deriving of many purposes from a foremost purpose was, before Natorp, em-

phasized by utilitarianism, and the basic contrast between the law of causality and the law of purpose was before him strongly and thoroughly opinionated upon in German philosophy by *Ihering*. But there is a difference between Natorp and his predecessors, and viz: The purpose of man's life, according to utilitarianism and also to Ihering, is only to be found by thorough investigations of experience, while Natorp, as well as Newkantianism on the whole, assert that the question of the aims to be followed in man's life, cannot be solved by the empirical way of thinking, but the answer lies within a highest a priori concept, the purpose of all purposes, the absolute, universal law.

But this purpose of all purposes, the highest formal law—like Cohen's "pure will" and similar notions—is seriously affected by exactly the same objection as Kant's categorical imperative, his basic law of morals. Such universal basic maxims are actually, because of their being purely formal and devoid of any real quality, quite empty; as a matter of fact, they are without any moral element and as emphasized above can be made to express both the most egoistic and the most altruistic rules of conduct. What Kant and his successors, the Newkantians, have done is that they have added unconsciously to the notions of universality, law and purpose, believing them to be purely formal, a definite content, a definite human quality, altruism, submission to general welfare; but this is not at all innate, a priori, in human nature, on the contrary, humanity can only learn it from countless experiences through centuries. Space and time, the law of causality and the law of numbers and quantities are matters all people must observe and submit themselves to; they are universal in the true meaning of the world; even the most selfish individuals have to conform to them; because if they do not employ these basic notions of reason they will not be able to obtain a sole effect bringing an advantage to themselves and harm to others. However, Kant's Cohen's and Natorp's basic ideas and laws do not belong to this universal kind of laws. Even the primary condition for comparing the basic categories of these philosophers to the notion of causality, space and time etc. is lacking, because the basic categories mentioned are purely formal and devoid of any real contents. Such basic ideas as those of causality, time and space may seem extremely wide, still they always represent a real orientation in daily life and also in science. The ideas of causality and time teach us that a large number of successive events in our multifarious existence must be considered as falling under cause and effect; this in connection with the notion of space supplies us with

directions for our thinking and acting. But the bare law, the bare will or purpose as such, devoid of any real contents, give us not even the remotest orientation in life or the shadow of a line of direction.

Also within the realm of the philosophies of justice and the state Newkantian opinions have played an important part up till the present day. For instance, the Austrian teacher of jurisprudence, *Hans Kelsen*, also builds his opinions on the basic idea of "Sein" and "Sollen"; he maintains Sollen to be an original category or basic form of philosophy, far removed from the categories or basic forms valid for the natural sciences, but equally valid in its own sphere: the intellectual sciences, especially jurisprudence. In comparison to the kind of conformity valid for all beings, for nature, i. e. the conformity of causality—a fundamantally different conformity rules within state and justice, called norm-conformity. Every state, all justice, all morals assume norms and rules to be followed by mankind. If we ask why we have to follow a definite rule or conduct as to justice and morals, the reason can only be found when we judge from a norm or rule characterizing this conduct as our duty, for instance a definite special law; and if we ask why we have to obey this law, this norm, the reason is to be found in a still more extensive norm, i. e. that we always must obey the laws. The laws represents a system of norms, one to be derived from the other; it is a scale of norms; the rule is deduced from the law, the law from the basic law. So we end up in a basic norm upon which all other laws can be based; but the basic law itself has no grounds—just like the law of causality itself in the realm of natural science. See specially *Hans Kelsen*: Hauptprobleme der Staatsrechtslehre, 1923, p. 7 seq.

This basic norm of Kelsen's representing a highest category is in no way better off than Kant's categorical imperative, Cohen's pure will or Natorp's law of purpose. None of these notions—basic according to the opinions of the philosophers mentioned—are universally valid to others as are the notions of space and time or cause. Kelsen's basic norm, when logically comprehended, is also purely formal, devoid as it is of judicial or moral contents, rules or directions. Like Kant's imperative or Natorp's law of purpose it may be the expression of anything, either the most brutal law of selfassertion or the direct opposite; and as it is devoid of any real contents it is simply for this reason incomparable to, and not to be co-ordinated with, such notions as those of space and time etc i. e. the most palpable basic ideas of everyday life and of science.

Leonard Nelson expatiates upon Kant's teaching on the general law

of morals as a law of weighing. In the conflict between opposite human interests these must be thrown into scales objectively, i. e. nonregarding one's own interests.

E. Sidgwick in his book: The methods of ethics already criticized certain of the opinions of *Bentham* and *Stuart Mill.* Sidgwick emphasizes that things desirable are not identical to matter actually desired or aimed at, also that Hedonism and Utilitarianism qua an actual psychological description is not quite in accordance with reality. When assuming that we ought to act in a certain way, that we ought to aim at a certain desire, then we are reaching beyond what is actually aimed at or wished for, fixing an ideal, a norm as a direction for our action and conduct. But as far as the norm, the direction is concerned Sidgwick associates himself with Utilitarianism when stating that we ought to aim at the highest possible happiness or pleasure for the community as a whole. Sidgwick, however, in this connection realized that Mill was inconsistent when, besides the quantity of pleasure, he also spoke for its quality; he therefore opposes this differentiation maintaining that only the quantitative definition of pleasure is tenable, see Sidgwick 379 seq.

English philosophy of the 20th century advances much further in its criticism of Utilitarianism. *G. E. Moore* makes an acute refutation of the arguments of Hedonism and Utilitarianism. These state that only happiness is desirable as a goal; Mill tries to prove it in the following manner: The only proof of a thing being visible or audible is that people actually see it or hear it. Thus the only proof of something being desirable is just the fact that people wish for it; but every human being desires and aims at happiness, *Mill* II p. 66.

Against this statement Moore maintains that "desirable" does not mean "able to be desired" in the same way as visible means "able to be seen". This really involves what ought to be desired or deserves to be. Not all that is desired is good. Mill himself speaks of "better and nobler aims for desire". Mill has attempted to identify the good and the desired by involving the true meaning of the desirable with something quite different: desired in its true meaning. *Moore* p. 67 seq.

At times Moore's argumentation against Sidgwick seems to me a little too formal, see 83 seq., 87 seq. But taken as a whole, Moore's criticism is very valuable. Also *H. Rashdall*'s investigations give thorough and valuable contributions. Rashdall remarks that acts which are partly expressions of instinctive self-preservation, partly of our desires or pas-

sions, prove that the main assertion of Hedonism and Utilitarianism—i. e. that all human action is a symptom of the desire for the highest possible pleasure—is untenable, Rashdall I 7-43.

Rashdall then critically and extensively illuminates the quantity of pleasure of Utilitarianism and its distribution in relation to the higher sense of justice, se 98 seq. (examples mentioned in the text). Like Moore, Rashdall states that our choice of higher enjoyments shows that we attach importance to spiritual conditions for other reasons than achieving pleasure, I p. 25-29.

While the psychological criticism of Hedonism and Utilitarianism by *Moore* and *Rashdall* must be endorsed in their main points, we must admit that these writers' own ethical points of view do not lead us to a decisive solution of the fundamental ethical problem. For both of them a final ethical basic idea prevails, for Moore the idea of "good" for Rashdall that of "value". It embraces more than the sensation of pleasure to the individual. Besides this it embraces at the same time also the universal welfare. The moral duty expressed in "ought to" means promoting everything considered "good" or valuable". But this last basic idea of good or valuable or the duty towards it cannot be proved by reason. According to Moore and Rashdall the intuitive and a priori schools of ethics are right; but they are wrong in holding that in single cases, in isolated instances of life the good or valuable may be ascertained without the help of experiences, Moore, specially 146 seq,. Rashdall I, p. 4 seq. 63 seq. 108-138.

Moore maintains that the question of proper conduct or what we ought to do involves a new question: the question of which things are the causes of what is good in itself; this question can only be solved by an empirical examination, in the same way as causes are discovered in other sciences, Moore 146. The assertion: I have a moral duty to perform this act, is identical to the assertion: This act will create the biggest possible amount of good in the universe. Our "duty" can be defined only as an act creating more good in the universe than any other possible alternative. Moore's main point of view is that intuitive school in moral philosophy is right in one chief point: what is good in itself we only know by intuition and no reason can be given. But this school is wrong in assuming our rules of conduct, the moral laws of duty, as being in the same sense intuitively safe. They might be safe from a psychological point of view but they must be proved safe through an empirical examination of causes and effects, Moore 147 seq.

Rashdall exposes extentively upon the existence of other blessings

or values than pleasure: the existence of universal welfare, a good character or virtue i. e. a talent or gift for striving towards this universal welfare; finally we have the promotion of culture. The commandments of morals and justice are meant to promote these values. The notion of value is to Rashdall the fundamental notion of all morals and justice —and so it is to Hoeffding: within this notion lies the perception of *shall*. Each and every ethical system, the system of Utilitarianism and that of Kant, demand a "shall". The moral judgment is judgment on values: this is good, this is right. Our moral judgment involves one last idea not to be analyzed: shall, duty. In so far Kant was right. He was right in assuming the performance of duty the highest blessing to the performer. But he was wrong when asserting that the bare notion: the categorical imperative and its abstract commandment were able, without asking experience, to judge what is right in separate cases, Rashdall 91, 100, 102 seq., 137. Therefore it does not seem inconsistent when in one place Rashdall remarks: "no experience of what *is* is able to give us a "shall", to prove that an act is right, I 109, and in another place he speaks of "shall" as a reality, I, 138.

As far as I can see, *Moore*'s and *Rashdall*'s personal ethical opinions finish up in a kind of combination between the English empirical school (Ethics of values) and the a priori school—especially that of Kant (Ethics of duty)—and their points of view seem to me to show some confusion in the handling of the main problem. If we comprehend the basic idea of these writers as a highest indefinable good or value and assume that it cannot be proved or ascertained through experience, I must consider this abstract summum bonum to be just as empty as Kant's categorical imperative, and I cannot perceive how this basic notion of a highest good or value, devoid of a definite contents, can in any way be employed in experience, much less as a guidance to the conduct of humanity. On the other hand, it should be emphasized that these writers maintain the impossibility of judging what is good and of value in isolated cases of life without turning to experience of cause and effect, and of which causes will render good effects; if this is so, then it is inconceivable why at long last the most comprehensive idea: the good or valuable should not be looked for through the same experiences of cause and effect, only far more extensive experiences and generalizations of experiences derived from innumerable separate cases.[1])

What lies behind the opinions held by Moore and Rashdall on a fundamental ethical idea, which on the one hand cannot be proved and

[1]) About Moores notion of "the good" see also *Perry* p p. 29—36.

on the other hand can only be applied to separate cases of life through the experience of cause and effect seems rather vague; as far as I can see, it is a certain feeling of the impossibility of employing "experience" of cause and effect in ethics, before this experience has been supplied with an element, and this element cannot be proved by or based on such an experience. But from this whole way of thinking I can obtain only one result: the notion of "experience" of causes and effects must here have a different meaning from that of natural science. In natural science the experience of causes and effects only states, that a certain cause has a certain effect, but it cannot tell us to perform a definite act because it is the cause of definite effects like the phenomena of the universal good or value; these phenomena are unknown to and cannot be proved or stated by the cognizance of causality in natural science. If this is so we consequently arrive at the final result of apprehending the highest ethical good or value as devoid of any basis, any proof in the experience of causes and effects, and also the immediate use in isolated cases of life of this highest value is devoid of any basis of proof within the same natural-scientific experience of causes and effects. If we are facing the highest ethical ideas: You shall try to realize the universal welfare or, applying it in a separate case of life: You shall not harm your neighbour, *A*; or you shall help your neighbour *B*; in everyone of these cases we must consistently realize the ethical commands to be postulates as seen from natural-scientific experience of cause and effect. The attempt on the part of Moore and Rashdall to distinguish between the two groups when applying it, is, so far as I can see, untenable; and accordingly my opinion is that the ethical point of view of these two writers, when they attempt to carry out this distinction maintaining the highest ethical blessing and its realization in life's causal links, after a consistent critical examination of their trend of thought, must result either in negativism as far as the ethical values, all ethics, are concerned or in an unprovable subjective belief in these values. These are the two contrasting poles of the present day and many trends and movements—philosophical, social and political—are tending in their direction.

It is now clear that the philosophy of ethics contains an element foreign to the cognition of causality in natural science, and so far we have not succeeded in stating or proving its existence. It is difficult to find a clear expression of what it is. As mentioned, we often express it by the verb: shall, as a fundamental contrast to the verb of natural science: is. Both Utilitarianism and the adherents of the a priori doctrines often use another word, applying it as a kind of explanation

of the rules of morals and justice. This word is: purpose. In the text above (p. 54-55) Ihering's frequent use of this word and the distinction between the law of cause and the law of purpose, often applied by him and others as a kind of explanation, is mentioned (see 437-443-37); the following phrase is often repeated by these writers: human life and organic life as a whole are submitted to both the law of cause and the law of purpose. This so-called teleological explanation (from Greek: telos —aim, purpose) was—as remarked upon before—frequently employed by Socrates and after him in later Greek ethics. In modern time, however, this view has been much disputed. The notion of aim or purpose is strongly questioned by modern biology and psychology. One branch of biology simply denies that the notion of aim is scientifically justified. Through numerous experiments, especially on animals, an extensive material has been collected illuminating the external movements or external behavior of animals and other organisms; simultaneously the physiological processes finally resulting in the movements and behaviour of the animals have been investigated. For instance the animal's physiological condition (of stomach and intestines) signifying hunger is examined, and then follow the external movements (to get food) made by the animal. The whole examination comprises exclusively the movements of the animal and those of its organs in space i. e. the physiological movements within its body and the resulting exterior movements, called the exterior behaviour (in the widest meaning of the word), therefore this study and the system are called *Behaviourism* (after the English word behaviour). Lately extensive and thorough investigations have been made of the so-called reflex-movements, i. e. the involuntary movements made by animals, men, organisms as a whole as a spontaneous reaction on an external impulse. It is a fact that many acts and movements of animals and men are quite unconscious reflexes on external movements, and that these reflex-movements are to a great extent habitual; the physiological condition of hunger thus spontaneously and unconsciously discharges the movement of reaching for or approaching food. Also outside the sphere of instincts numerous unconscious reflex-movements arise from habitual repetitions. For instance, if a man has repeatedly brought his dog along in his car, the dog will involuntarily every time the door is opened make a movement to jump into the car. Through experiments it has furthermore been ascertained that the connection of a reflexive movement to one object may be changed to another object by means of habitual reiteration, for instance the normal reaction upon the sight of food will no longer produce the

natural reflex, but another one which has been taught (the so-called conditioned reflexes). For instance, show repeatedly a light-signal to a dog just before feeding him, and afterwards repeat showing him the food without the light-signal and in these instances refrain from giving him food, the natural reflex following the sight of the food, for instance salivation, will finally follow the light-signal, even if the animal does not see the food; vice versa the reflex in mention will not be produced by the sight of the food if the light-signal is left out.

Behaviourism is trying to describe and explain the instincts of animals and men and the produced actions appearing as external movements in space (inside or outside the organism) as causes and effects in space, and the modern teaching on reflexes tends in the direction of a purely physiological explanation of the more or less complicated reflexive movements taking place in the nervous system; it is therefore comprehensible that these philosophies have no room for notions such as purpose, acting on or pursuing self-chosen purposes, the objects of ethics and religion of all times; and viz: in the external observable number of physiological and physical causes and effects such phenomena as purpose, acting on or pursuing purposes will not appear; only certain physiological processes inside the living body (for instance the physiological hunger-process)—automatic or reflexive—may be observed releasing other different physiological movements of the body and the external effects in the outside world. According to these opinions consequently a tendency may arise to regard such notions as purposes and acting on purposes as incomprehensible, mystical ideas, non-scientific according to the methods of natural science and its explanation through definite, external palpable causes and effects. Certain behaviourists judging from experiments often mentioned, maintain that an organism may seem to act and choose according to purposes—agreeing with the mentioned "mystical" concept—but after a closer examination it proves unnecessary to resort to that kind of explanation. An often told experiment is the following: A young animal (for instance a cat), is placed in a cage with a door and the food outside the cage. The animal being hungry at first will perform many random movements in order to approach the food and will continue to do so until by chance it makes the one right movement—pushing the door—giving it access to the food. Little by little while repeating the experiment, the number of unsuccessful random movements will decrease and finally the animal will make only the one right motion giving it access to the food. Some writers be-

longing to Behaviourism opinionate that the animal amidst its many random movements will at last make the one leading to satisfaction of its instinct—in this case hunger—or to pleasant results; but the more consistent behaviourists stick to the external movements and their cause-effect-relations and consider all such expressions as "satisfaction" or "pleasure" employed to explain the behaviour of the animal from internal psychic phenomena as being non-scientific mysticism or speculation. *Watson* avoids this kind of explanation and sticks to the psysiological or physical processes—the movements occurring in stomach or intestines signifying hunger and their effects or symptoms in organic movements directing the organism to the food. According to Watson, speaking of the satisfaction of the animal is not objective psychology. The animal's feeling of satisfaction is not within our reach of observation. We are only observing an association of physical processes. Both glands and muscles are reacting in these associations, i. e. physical processes succeeding immediately—in animals and men alike—upon one another in time, and in external contact with one another. On the whole, Watson is apt to explain the behaviour and habits of animals and men as being reflexes, acquired reactions or stipulated reflexes, see *J. B. Watson*: Behaviourism, p. 166 seq. Other psychologists, however, maintain that their experimental material, including the experiments of Watson and other like-minded writers, are too limited to educe generalizing conclusions. For one thing, their experiments do not include the higher animals. For instance *W. Köhler* has made special experiments on higher animals, certain species of apes, and has produced a material (in his treatise: Mentality of apes) including experiences and experiments not conforming with the experiments of Watson and others on dogs, cats etc. Köhler's experiments on the apes show *that* these animals in similar experimental tests do not obtain the object—the food—after a lot of random acts and one final fortuitous act leading to the food; *but that* already after a few random acts they pause, and then perform the only right action, the one leading to the food; *and that* this pause and the ape's behaviour during it affords only one natural explanation: a certain meditation, a certain weighing, a picking and choosing of means in connection with obtaining the food, a choice made according to a certain intelligence. Among the numerous experiments made by Köhler, one runs as follows: Köhler put the apes in a place where they could see but not reach the food, some fruits hanging high above them. Close by he put a number of boxes spread upon the ground. After a few random movements not

leading to the fruits, the pause mentioned occurred. And following this the apes started piling the boxes one upon the other until they were able to reach the fruits. The explanation that the solution was in this case due to mere chance is unacceptable.

These experiments taken all together lead to the following explanation: reflexes and conditioned reflexes, the accidental associations, fit with a certain group of cases from the produced experimental material, i. e. experiments on cats and dogs etc, but this explanation does not conform with the second group of cases of the experimental material from the tests performed on higher apes.

The one-sided Behaviourism rejects the psychological introspection qua means of cognizance; this has lately been abandoned by the more prominent psychologists and philosophers, see a. o. *B. Russell* II 32 p. 45, *McDougall* I 224 seq., 358 seq., 281 seq., 312 seq., *Wolfgang Kohler:* Psychologische Probleme, 1933, 5-42, *Brandt* I 9 seq., *Rubin*, Congress of the problem of causality, 1937, 396. *Russell* remarks to the point, that *Watson's* behaviourism breaks down because he tries to escape the data from which we must start in order to obtain knowledge of the physical movements of men and animals, and these are exactly the same kind of data which Watson wants to avoid, i. e. those which can be obtained only through introspection. Russell II 135. On reflexes and conditioned reflexes, see *Frithioff Brandt* I 85-91.

If Behaviourism only means a striving to understand the external behaviour of men and animals physiologically illuminating the processes, which are at the same time being elucidated by psychology, then Behaviourism is entirely justified. Psychology and psysiology then supplement each other in a valuable manner. But if Behaviourism means waiving the psychic processes in our conscious life and denying the legitimacy of psychological observation, then it is based upon an untenable scientific method, and I should like to call this a scientific basic delusion, see 7th and 8th chapter.

Page 61-65.

ETHICAL NIHILISM

The works of *Nietsche* (the most significant being: "Also sprach Zarathustra" 1885, "Jenseits von Gut and Boese", 1886, and "Die Genealogi der Moral" 1887) if not quite abandoning all ethical evaluation, signify an "Umwertung aller Werte" (a fundamental revolution of all values). His philosophy—though rather inconsistent—breaks with Christian

morals and also with Utilitarianism. He does not see the good of promoting the big mediocre masses' level of pleasures. He sees the goal of mankind in the great men, men of genius. As seen from the starting point of Hedonism and Utilitarianism it seems to him inconsistent that the strong, intensive feelings of these chosen men should be unable to surpass a lot of small inferior pleasurable feelings belonging to the big masses of mediocre people. The Christian moral, including submission and sacrifice, also to the enemy, seems to him a slave moral; he sees the future in the morals of rulers and masters, the great men of mankind, and history shows that they can only fully unfold by undertaking great works and exploits, by subduing and abusing the masses. However, Nietsche is to some degree inconsistent. It is difficult to find grounds for the great value of these works or exploits except for this one reason: their value to mankind as a whole, to the life of mankind in the present and the future. In this case we end up in Utilitarianism in a wider sense. If an evaluation is not based upon this point of view it seems impossible to decide who are the great leading geniuses. If he abandons such an evaluation, Nietsche's morals as to masters and rulers result in an implicit glorification of *power*, of the individual's ruthless expansion, of his striving for happiness notwithstanding its consequences to his neighbour. Thereby the basis of morals and justice is abandoned. A doctrine like Nietsche's was symptomatic for the German people during a certain period. Consciously or unconsciously, a doctrine of power and mastery was spreading in large circles of the new Germany arising after the victory over France in 1870. This doctrine of power must seem alluring to a people fighting for a bigger place in the world. This teaching was put to the test of experience in the conflict between the powers during the world wars 1914-18 and 1939-45. Devotion to a doctrine of power and mastery, followed by unlimited expansion of the self, may, as far as states and also individuals are concerned, pass off relatively well until the point where the expansion of one people collides with the desire for power and expansion of other peoples; and of such peoples there were, as is well known, several others besides the Germans. The fight for power gave poor results in both these wars—in the long run for both victors and the vanquished.

From the above it is clear that opinions such as those of Nietsche, although to a certain degree based upon confirmation of life as a value, when closely studied, lead to a scientific denial of the ethical values and not only to an "Umwertung" of the current values. In the beginning of XX'century we encounter in a group of German writers on Ethics and

Sociology a negative direction similar to that of modern French philosophy.

In the North we find the same thing. *Georg Brandes* brought the so-called *realism* into Nordic intellectual life; with him and other representatives of this philosophy a similar vagueness to that of Nietsche is evident. Georg Brandes was at first an adherent of Utilitarianism; he translated Stuart Mill's book: Utilitarianism under the title of: Morals based upon the principle of happiness and use, 1870; his attacks on the current, inherited moral notions and institutions f. inst. the recognized form of marriage were based upon a new kind of evaluation, to him the only rational one, of happiness and use; first of all its task was to be the judge of inherited morals and justice in their promotion *of individual happiness*, the individual's free expansion and the welfare of the people in general. Later on he became strongly influenced by Nietsche and embraced a so-called aristocratic radical point of view, seeing the chief purposes of mankind and culture in producing the leading spirits, men of genius, making it necessary to keep the masses, the people in the background. The question whether he introduced new fundamental values or whether this new view can ultimately be led back to Utilitarianism, to the welfare of mankind in a wider sense, was not clear. Taken as a whole, independent philosophy was not a speciality with Georg Brandes; but he was a prominent propagator of the great philosophers' ideas. His significance as an independent spirit to nordic intellectual life lies in different directions, his enthusiastic and inspired interpretation of the works of the great poets and his sharp psychological sense in describing History's great men and their surroundings. Partly owing to this and partly as a propagator of the new European ideas he exercised a stirring and inciting influence, especially upon young people of his own time, his ideas were particularly valuable to people of independent thinking. Ethically his strong attacks upon the inherited morals and order of law, particularly Christian morals and institutions, his emphasizing of the individual's right to expand his own life and happiness, against all current moral opinions, must necessarily lead to a certain general negativism towards moral values as a whole and to a dissolution of all definite rules; this left its mark in the form of a conscious vital programme in the lives and books of his many adherents, to weaker characters it often meant a miscarried life. Neither he nor his adherents gave any real scientific grounds for this negativism. — — *Hoeffding* was a contemporary of Brandes; this philosopher stuck to Utilitiarianism all his life and made—as mentioned above—a systematic exposition of Ethics

based upon Utilitarianism. When Brandes was converted to the opinions of Nietsche, a dispute between Brandes and Hoeffding occurred, see. "The spectator" (a Danish periodical) 1889-90. Because of his positive opinions on definite ethical ideas and trends of thought Hoeffding had great influence on many of his contemporaries, particularly young people. In his religious philosophy, 1901, he stated that the essence of all religion is a belief in the survival of the values. Hoeffding has not furnished independent grounds for his ethics or his teaching on values taken as a whole, just as Brandes failed to give independent grounds for his ethical negativism.

In the XX'century a profound and really scientific work on Negativism as against the ethical values appeared, written by the independent and talented Danish philosopher *Herbert Iversen*, viz: Two essays on our cognition (1919). Like many young people of his generation he may be said to be influenced by Brandes, but in contradiction to Brandes and his true adherents he is an independent scientific philosopher.

Herbert Iversen's attitude to ethics must be seen in connection with his epistemology. His general epistemological starting point is: the only thing known and the only thing existing are definite psychic experiences at definite moments, being either certain impressions, certain perceptions or feelings of pleasure or displeasure. From this basis he states the problem of value—i. e. the problem of good and evil, duty etc., whether it is the social principle of welfare of Utilitarianism or Kant's ethics on duty, "practical reason"—to be absolutely outside the sphere of objective science, and that all so-called "objective" arguments for our actions and evaluations or tendencies to evaluate are but phantasms, V 220-21. What kind of experience at a certain moment could this value be? An experience of pleasure? From a psychological point of view all experiences are equally "good", right, real, valuable, 225.

About the notions of "value" and "interest" see the penetrating investigations by *Perry* p. 27 seq.

Page 95-101.

ON REPRODUCTION BY SIMILARITY AND BY CONTIGUITY

The problem of our consciousness finding *similarity* and *difference* has been the occasion of copious psychological speculations in German literature of modern times. The sensations or perceptions covering one

another or falling apart from one another cannot be referred to the usual differing types of psychical phenomena such as the sense perceptions, representations, emotions, volition; and therefore a school with advocates like *Marbe* and *Watt*, working in Würzburg, characterized the phenomena of likeness as "Bewusstseinslagen". Another psychologist, *Betz*, characterizes them as attitudes (*Einstellungen*). He maintains that recognition, likeness are not experienced through *representations* but through *Einstellungen*. This expression seems more to the point than Bewusstseinslagen, which is rather inadequate. When a sense impression has been retained in our consciouness, and when later another sense impression having a certain resemblance to the first one is superimposed, we are to some degree justified in declaring that our consciousness is focussed upon the new impression through the one retained in our memory. But our attitude has to be both conceptively and susceptively prepared; for one thing, the whole content of our consciousness including all ideas, similar or different, belong to our "attitude" when we are facing new experiences, new sense impressions; therefore the word "attitude" seems to me rather inadequate when signifying isolated recognitions or perceptions of resemblance, strictly limited as they are. The phenomenon of recognition or similarity taken as a whole seems to me not very complicated. I must perceive its most natural and simple characteristic to be a sense impression, overtaking or covering, wholly or partly, a remnant of memory, a reflexion of an earlier sense impression. It seems to me that German psychologists often by resorting to artificial expressions and extensive investigations end by making the psychical phenomena more complex than they really are.

A much debated question is whether all reproduction and association of representations are reproduction and association by contiguity or reproduction and association by similarity, see *Frithiof Brandt* II p. 112-126. As far as I can see, every so-called reproduction by contiguity and every reproduction by similarity are dependent upon a present sensation or representation, *A*, overtaking a reminiscence of an earlier sensation or representation, "*a*", which wholly or partly resembles the present sensation or representation. The difference is this, that in the so-called reproduction by contiguity there is a perfect likeness between *A* and "*a*", whereupon *A* drags along the representations connected with "*a*", namely *b*, *c* and *d*; while in the so-called reproduction by similarity, *A* only partly resembles "*a*", a part of "*a*", and carries along the remainder of "*a*". In both cases the element of likeness, called *x*, constitutes a part of a larger whole, either, as in the case first mentioned,

"*a*" constitutes a part of the whole *a-b-c-d*, or, as in the second case, a part of "*a*". Examples of the two kinds of reproduction may be taken from the above-mentioned work of Brandt's II p. 112-121: (1) You meet your friend *A*, and having an earlier reminiscential picture of him, "*a*", you happen to think of the book you have borrowed from him, the reminiscence of the book being *b*—a case of reproduction by contiguity. (2) You meet your friend *A*, and happen to think of a person you saw a few days ago, *B*, of whom you have a reminiscential picture, *b*, the two of them resembling each other—a case of reproduction by likeness. Suppose they resemble each other in both having a peculiarly shaped nose which trait is called *x*; *x* comes in as a part of both *A* and *B*. The phenomenon is really in both cases (1) and (2) the same thing. Just as *b* is a part of the whole *a-b*, the friend and the book, *x* is a part of the whole, *A*, therein *x*, or *B*, therein *x*. The nature of the difference between the two cases probably lies in the unity in case (2) being a more perfect unity, the nose being part of the organism of the person, while in case (1) the unity does not constitute an entire whole, but the person plus his surroundings, among them the reminiscence of the book, *b*, and in the present sensation the surroundings of the person minus *b*.

We now realize that all reproduction by contiguity and reproduction by similarity, when all is said, are of the same nature, i. e. a present experience, *A*, overtaking an earlier similar experience „*a*", whereupon "*a*" pulls its surroundings, *b*, along (*A* in the first example being the whole of the friend, *b* the book, *A* in the second example the nose of the friend, *b* the rest of the body of the other person) and accordingly the discussion concerning the hypothesis of contiguity and similarity seems absolutely idle. The same may be said of the discussion between *Høffding* and *Alfred Lehmann*, see Lehmann's last Essay on Recognition (Genkendelse) in the journal of Videnskabernes Selskab, 6th series, chapter 2, 1888, and Harald Høffding: Psykologiske Undersøgelser (Psychological Investigations), same journal, 6th series, chapter 3, 1889. Lehmann, who is an adherent of the contiguity-association-theory and who denies that we possess a spontaneous recognition, seems to lack decisive arguments in defence of his opinion. Against the theory of reproduction by similarity as in spontaneous recognition he remarks as follows: "According to this opinion, *A* is a present condition, "*a*" is the same condition, its one difference from *A* being its happening for instance yesterday. "*A*" reproducing "*a*" should then mean that the present condition produces the condition of yesterday, etc. "Lehmann p. 189. Lehmann is right in considering this whole argument absurd. It is unfortu-

nate, though, that Lehmann himself has constructed it. The theory on similarity does not admit this absurdity. According to this theory *"a"* is not the condition happening yesterday; for, as Lehmann rightly observes, this will never happen again. On the contrary, *"a"* is its after-effect, not the actual but the potential condition. It is not difficult to find absurd opinions with your opponents when you yourself bestow them upon them. Furthermore, the difference between mediate and immediate recognition is not as great as assumed by Lehmann. Between a representation persisting as a memory image and one persisting only as a disposition of a memory image there are many degrees and transitions. Why should we not *feel* similarity as immediate recognition when a sensation or representation overtakes this disposition? The same *"feeling"* of similarity is found in direct recognition only stronger by a degree. Between mediate and immediate recognition there is only a difference of degree.

The phenomenon in modern psychology called perception or apperception of the objects perceived or apprehended is well defined by *Brandt* as a sensation or representation attended by our consciousness as to the nature of the sensed or perceived, see Brandt II 28. We are able to apprehend or perceive f. inst. a visual image of a horse only when we are conscious of the object now observed as belonging to objects formerly often seen, on account of their similarity classed under a common group or genus: horses. This consciousness of genus is entirely based upon our perception during sensation and representation of similarity and difference, the latter being the difference of the genus or group from other genera or groups.

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ELEMENT PSYCHOLOGY AND GESTALT PSYCHOLOGY

Up to this time epistemology and its consequences stand unaffected by the disagreement between Element Psychology and Unity (Gestalt) Psychology, that is whether I perceive my present sensations, for instance a sight impression of the part of my room visible to me, as a unity of colours and objects, or I discern and abstract the separate objects from one another in different figures and colours and the different colours in each object; in both cases all sight impressions and abstracts are my mental experience at a certain moment, quite apart from the

epistemological problem of an external world which must exist behind the qualities of the so-called objects and cause the sight impressions. Whether we perceive the psychical complex called an object immediately, directly, as a whole, afterwards discriminating between its separate links and qualities, or we perceive these different qualities immediately, afterwards combining them to a unity—we shall in both cases be equally far removed from arriving at a substance existing behind them. A cause and its effect are often perceived as a direct "effect-correlation": I see the fire at this moment and the same instant feel the warmth in my body. However, *Jørgen Jørgensen* is right when emphasizing (459) that this fact leaves *Hume*'s demonstration unshaken, and viz: Between the sensations, cause and effect, the fire and my feeling of warmth, no universal, necessary connection exists, neither do we behind the sensatoins find an "internal" coherence universally necessary in an external world which always in future will make the same impressions, cause and effect, follow one another.—"The mental experience at a certain moment" of *Herbert Iversen*'s is always a whole, satisfying all that can be demanded from a Gestalt psychology. But after this mental experience all successions in time of cause and effect ceases, yes, of all time—as emphasized by Iversen—an idea also entertained by *Russell*.

The conflict between Element Psychology and Gestalt Psychology is not quite clarified yet. It was hardly the opinion of *Locke*, *Berkeley*, *Hume* or other so-called element psychologists that by looking at a horse, for instance, we at moment (1) had a sensation of the brown colour of its body, at moment (2) of the white spot on its brow, at moment (3) of its white socks, at moment (4) of its size and shape, and afterwards at moment (5) correlate all these sensations into a whole. These philosophers did not express any special opinion upon this subject. But from the contents of their writings there is nothing to prevent us from believing that they meant quite simply that we perceive simultaneously at moment (1) the different sight impressions (brown body, white socks) and at the same time correlate these into a unity, i. e. a horse. The actual psychical process is probably that at the first moment, when seeing the horse, we get a more or less definite semiconscious impression of the whole of the horse and of certain different parts of the animal. Afterwards at moments (2), (3), etc. we may consciously direct our attention towards its brow and socks. The opinion of the Gestalt psychologists that our perception of the surroundings and the objects in them gives us directly a psychical unity or psychical unities seems especially to refer to our sight impressions. However, add to those, our other sensations of

pressure, movement etc., then we must admit that the element psychologist to a certain degree has judged correctly. In my surroundings, i. e. part of a room, a garden etc. lying within my field of vision, usually one or more phenomena, especially those called objects, are more dominating than the others and may be called psychical dominants. When for instance I enter a room containing a big table conspicuous in proportion to the other things in the room, this dominant immediately disengages itself from the rest of the surroundings; it steps outside the unity breaking it. Of this dominant, the table, I am certain to get a sight impression of the outline and colour directly and as a unity (without abstracting one of these qualities from the others—at all events not quite consciously) at moment (1). Later on, at moment (2), (3), etc., by touching the table and walking around it, I get sensations of pressure, movements of my muscles giving me an even stronger impression of the hardness of the table, its shape and size; in the same way I may get new impressions of the table when seen from a different angle. All these impressions add to my compound image of the table. In proportion to these so different sensations—continuing at different intervals, supplying one another, successive—it seems true that all these impressions correlate in our consciousness into a united but compound perception of the table as an object. This psychical process of correlation is always taking place, often at long intervals, because we are always discovering new qualities in the objects. To a certain degree we may assume that we combine a number of different sensations into an image of a thing. And in scientific investigation this process of discernment and correlation grows conscious.

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ON KANT'S "A PRIORI" METHOD

The method of Eglish epistemology is empirical psychological. *Kant* did not want to employ this method, stating that he used an a priori, transcendental method. His opinion was therefore that the investigation of epistemology must take precedence and be independent of all experience, because all experience, also that of psychology, employed certain mental forms, and these forms, being derived from the structure of the human mind, were a priori; at the same time, however, they were the condition essential for experience. These a priori mental forms could only be determined through an a priori investigation reaching beyond all experience (transcendental).

If a method be valued according to its fruits then the method of Kant for this reason alone seems untenable; as shown in the text, it has resulted in a number of distinctions and assertions partly unprovable, partly fallacious. But the next question is as follows: Is it right that Kant's method, contrary to that of his English predecessors, is a priori?

The resolution of this question is dependent upon what we understand by a priori. As I have shown in another investigation, we have 3 different meanings of the word a priori, I book 150 seq. First we shall look at the third of these connotations.

"A priori" in the deeper meaning (3): A cognition created wholly by the special *structure of our mind* and *not* by *influences from outside*, though affecting our apprehension of them, cannot be maintained, because all deliberation on this point is free speculation. Sensations and relations are equally universal, necessary links of our experience, in the sense that each of these two groups of means of apprehension taken as a whole is indispensable in experience, but they are not necessary in the sense that every factor within the group, for instance the sensation of colour or the cause-effect-relation, universally and implicity belong to every experience. For instance: I am able to experience sound without colour, relations of similarity without cause and effect. From the above mentioned fact that the elements of cognizance (sensations and relations) are universal and implicit to all experience we may under no circumstances infer their lying within us qua subjective forms of apprehension. The only thing proved is that some sensation or relation is needed for our experiencing anything. But whether the sensations or relations alone are or are not within us is a question unsolved.

Kant's method cannot then be called a priori for the reason that it deals with a priori mental forms of experience, because, taken as a whole, there is no discriminating between a priori and non a priori parts in this sense within experimental cognition.

Further Kant's epistemology is no more a priori as far as connotation (1) is concerned: a universal, absolutely certain (apodictic) knowledge, its elements being derived from experience, although its general assertions stand regardless and independent of experience, sense perceptions—for instance mathematics, its invariable figures, quantities and universal validity agreed upon by ourselves—the basic assertions of Kant's epistemology being so far removed from an absolute certainty as to be quite unprovable, as shown in the above. For this reason alone they are not a priori as to connotation (2) also: Assertions concerning a future experience, this being the case when we are drawing conclusions from one

part of a law-bound interrelation to another part, the first or the second part not yet being observed by our senses (from effect to cause or from cause to effect): therefore his assertions are generally—regarding past, presence and future—unprovable.

Finally I should like to emphasize: There may be a certain difference between the methods actually employed by a philosopher and those he himself asserts and believes he is using. If we examine the method employd by Kant it proves to be empirical, experimental, psychological, also in the sense of Kant's own connotation of the word experience. It is his opinion that experience is a product evolved by our mind while treating the raw material of sensations, and in spite of a certain vacillation evident in Kant's use of the word experience his actual opinion is expressed in the remarks mentioned above and similar remarks, i. e.: To Kant experience means sensations plus relations, sensations in the interrelations of space, time, similarity, cause and effect, vide the notion of experience in Kant's theory, book I p. 138-144, 337 seq. As I have shown in the above the whole of Kant's epistemology, with its main groups--sensations, apprehensions, mental forms etc—and its basic view: our mind "produces", "treats" the sensations like a material derived from das Ding an sich—is nothing but psychological experience in the sense used by himself: the psychical elements in the interrelation of time and space, similarity and difference, cause and effect, although his experience is insufficient and the consequences drawn by him are unwarranted. When Kant believes that his own empirical, psychological method is an a priori, transcendental method it is evident that he is unconsciously succumbing to a decisive basic delusion (cf. above 157-59). He moves methodically in a circle. He will not build his epistemology on experience; he wishes to test its elements and relations critically; however, for these tests he used, as shown, just experience, its elements and relations, i. e. psychological elements in the relations, though this he undoubtedly did unconsciously.

ON THE QUESTION OF THE BASIC DELUSION

In the works of several philosophic writers we find here and there random remarks touching the question of circular conclusion in epistemology; only very seldom is the problem of basic destruction referred to. A coherent, profound investigation of the whole question, which I have called the basic delusion, does not exist. In the text I have

tried to give such an investigation. One of the first critics of *Kant*, *Jacoby*, stated—in his work of 1787 regarding Kant's use of the notion of causality—that Kant, if he were consistent, ought to deny all existence outside our perceptions and in this way, like Hume, maintain pure subjectivism or idealism. Assuming ein Ding an sich as being the cause of our sensations is at variance with Kant's own teaching on the notion of cause and effect as a mental form only to be used and only valid inside the realm of experience, cf. *Hoffding* II, 57. As I have stated in the text above, this opjection is so far right, but the decisive basic delusion of Kant's according to my opinion, is that he assumes ein Ding an sich; he can only arrive at this assertion through our perception of difference and similarity, a mental form which Kant only recognizes as valid in the sphere of experience, i. e. the world of phenomena. *G. E. Schulze*: Aenesidemus, 1792, also attempts a criticism of Kant's employment of the rule of causality. "Offenbar bringt ja nämlich der Verfasser der Vernunftkritik seine Antwort auf das allgemeine Problem: Wie nothwendige synthetische Sätze in uns möglich sind? nur dadurch zu Stande dass er den Grundsatz der Causalität auf gewisse Urtheile, die nach der Erfahrung in uns da sind, anwendet; diese Urtheile unter den Begriff der Wirkung von Etwas subsumirt; und dieser Subsumtion gemäss das Gemüth für die wirkende Ursache derselben annimmt und ausgiebt," the above mentioned book p. 104." Allein diese Ableitung der nothwendigen synthetischen Urtheile von einem Dinge an sich würde auch offenbar dem ganzen Geiste der kritischen Philosophie widersprechen, und eine Erkentniss voraussetzen, welche nach ihr für den Menschen gar nicht möglich sein soll," p. 117. "Nun ist aber weder das Entstehen der verschiedenen Bestandtheile der menschlichen Erkenntniss, noch auch das Gemüth und seine Handlungsweise ein Gegestand der Erfahrung, und beyde sind uns in keiner einzigen empirischen Anschauung gegeben: Also ist es auch nach der Vernunftkritik gänzlich ungereimt, den eigentlichen Ursprung unserer Erkenntniss und besonders den Ursprung derselben aus dem Gemüthe, oder die wahre Handlungsweise von diesem und daseinige, war es zur wirklichen Erkenntniss beyträgt, iemals einsehen zu wollen," p. 129.

A few Kantians of modern times refer to the circular conclusion as an objection against the critical philosophy according to Kant's method. However, this objection is rejected. Somewhere in his work: Kritische Philosophie 2nd edition 1923, *Arthur Liebert* writes on "der scheinbare Zirkel in der grundsätzliche Fragestellung", p. 8-13, although his remarks concerning this matter are very obscure. At first he asks how

critical philosophy as such is possible, when the systematic criticism is conveyed to the theory of criticism itself as if it were derived from the idea and significance of criticism. This theory of criticism seems to be both object and subject to this object. In spite of this he thinks that this essay is logically possible and practically feasible, cf. V 9. However, Liebert has not succeeded in giving reasons for his assertion. He wants to discriminate between Theorie and Princip der Theorie; but nothing emerges from the subsequent remarks, 10 seq. Like Kant, he assumes that the question is insoluble by any psychological method, p. 14 seq., but soluble by another method which he calls the critical-phenomenological-systematic method, p. 23 seq. What he means by that seems obscure. The ultimate source or instance should be what he calls the idea of the systematic unity of reason, p. 26. Similar expressions are to be found with Kant, see for instance the passage: Kritik der reinen Vernunft: Analytik der Begriffe, (the beginning). Liebert says: ..... die Systematik und systematische Einheit der Vernunft .....ist, wenn man so will, die einzige Voraussetzung, die das transcendentale Verfahren macht, eine Voraussetzung, die wohl nicht gut abzulehnen ist, da *die* Voraussetzung schlechthin, die Voraussetzung der Erkenntniss überhaupt bedeutet", p. 29. No further explanation is forthcoming of this systematic unity which is said to be the highest instance of the critical transcendental philosophy. Expressions like "the conformity of reason", "the teleological systematics of reason" (cf. p. 26-28) do not succeed in making the matter any clearer.—*Alf Nyman* in his treatise: Psykologism mot Logism, Psychology contra logic, 1917, touches on the problem of the relationship between psychology and logic. He says of Kant, that it is questionable whether he has given psychology access to the theory of knowledge and whether he has succeeded in keeping the transcendental method free and unrestrained of all psychological considerations, p. 11. In another place this writer remarks that it cannot be asserted that logic builds on psychology, on the contrary, psychology qua scientific theory is based upon logic and the laws of logic, because psychology presupposes, as a matter of course, the validity of the notions of truth for its rules as far as experience goes, and these are based upon observations (the law of association and reproduction etc); we arrive at its conclusions by following the general rules of logic. This circle can never be broken by "psychologism", p. 17-18. However, the writer does not expound any further upon this problem; and he does not touch upon the real basic delusion or basic destruction. — In several articles in the journal: Kant-studien, contributions to a critical illumination on Kant's epistemology

are found, but only here and there we find a few remarks touching on the basic problem. In a treatise in this journal, vol I 1897 by *E. Adickes:* Die bewegende Kräfte in Kants philosophischer Entwicklung und die beiden Pole seines Systems, p. 9-59 Kant's method is said to be psychological, viz: dass Kants sogenannte transcendentale Methode in Wirklichkeit eine rein psychologische ist, dass seine transcendentale Beweis ihren Zweck nicht erreichen und im Grunde aus nichts als aus psychologischen Erörterungen und Hypothesen zusammengesetzt sind, ist mir persönlich nicht zweifelhaft", p. 57. See also *Heinrich Maier:* Die Bedeutung der Erkenntnisstheorie Kants für die Gegenwart" in Kantstudien, vol II 1898 pag. 404 sep. *J. Mirkin* emphasizes that Kant has not succeeded in solving Hume's problem of causality; in his article: Hat Kant Hume widerlegt? Kantstudien, vol VII 1902, he remarks: "Die Kantische Beweisführung für die Apriorität ebensowohl des Substanz- wie des Kausalitätsbegriffes ist unhaltbar und beruht auf Missverständnissen: so dass wir auch die Frage, ob Kant in Bezug auf den Substanz- und Kausalitätsbegriff Hume widerlegt hat, entschieden mit einem Nein beantworten müssen.", p. 299. Supporting his assertions on the criticism given by the above mentioned Schulze, *H. Spitzer* remarks: Der unausgesprochene Kanon der Kantischen Erkenntnisstheorie: Die objective Zeitordnung, die nach Kant durch die Kausalbetrachtung ermöglicht werden sollte, geht also in Wahrheit viel mehr dieser voran und ist eine ihre Grundlagen", p. 51. Den einen Fall verbotener, nämlich nach Kants eigenen Grundsätzen verbotener Anwendung des Kausalgedankes hat bekanntlich Aenesidemus-Sculze aufgedeckt, indem er die Rolle erörtete die in der Kritik der reinen Vernunft der Vermögensbegriff spielt. Dieser Begriff ist eine Modifikation oder Spezialisation des Ursachenbegriffes: das Vermögen, die Kraft, Anlage, Fähigkeit, und was sonst noch für Synonyme man wählen müsse bedeutet nichts als eine beharrende Grundursache, die bei Hinzutreten anderer, der auslösenden oder Gelegenheitsursache sich betätigt oder entfaltet. Die Vermögen, welche die Vernunftkritik in Anspruch nimmt und welche, indem sie sich in Tätigkeit setzen, die Welt der Erscheinungen hervorbringen, liegen nun offenbar nicht diesseits, sondern jenseits und hinter der phänimenalen Welt, die ja erst durch die Aktion der Vermögen erzeugt wird." p. 54 sep. H. Driesch emphasizes in his article: Skizzen zur Kantauffassung und Kantkritik, Kantstudien, vol. 22, 1917: Dass die ungeprüften Voraussetzungen der Kantischen Lehre von Empfindungen, Raum und Zeit metaphysisch, und zwar von den naiv-realistischen Art, sind, wird wohl allgemein zugestanden," p. 83. *Paul Hofmann* gives his opinion in Kantstudien, vol 31, 1926 p. 330-343: Riehls Kritizismus

und die Probleme der Gegenwart. He gives vent to doubts as to Riehl's use of the principle of unity of consciousness as the final grounds for the logical a priori as a whole. In this matter Riehl carries out one of Kant's ideas with undisputed consistency. Kant recognized the synthetic unity of apperception as being the supreme point: all employment of our reason even the whole of logic and after logic the transcendental philosophy must be attached to this point. But why is this principle as such valid as far as the unity of consciousness is concerned? Kant answers: because the multitude in this "an sich" is dispersed, it must be collected (combined) not only into the subject, but by the subject". "Wer sitht nicht, dass diese Begründung metaphysiche Voraussetzungen einschliesst, dass sie also nicht rein sinnanalytisch sind? Es heisst doch hier: die Mannigfaltigkeit kommt aus den realen Dingen an sich; auf deren mannigfaltige Reize reagiert das Bewusstsein mit einer "psychologischen" Einheitsfunktion; und ohne diese letzte könnte vielleicht überhaupt kein Bewusstsein, sicherlich aber keine Erkenntniss von Gegenständen zustande kommen. Gewiss habe ich schon hiermit mehr gesagt, als ich bei Kant und Riehl explicite gesagt finde. Will man aber diese Art der Deduktion ablehnen, so sehe ich nicht, wie man die Gültigkeit des Princips der Einheit des Bewusstseins (genauer den erlebten Gültigkeitssinn seiner Anwendungen) selbstverstandlich machen will. Hier kann, wie ich glaube, nur eine vertiefte Sinnanalyse der Urphänomene des Erlebens die Anlehnung an versteckte metaphysische Voraussetzungen vermeiden und den Ring der Zirkelerklarungen durchbrechen," p. 342 seq. But the writer does not give such an analyses. An article in Kantstudien vol 39 1934 p. 156-187 by *Gerhard Krüger:* Der Massstab der Kantischen Kritik is quite an abstract speculation. In a few places the author gives suggestions of the basic problem, but he does not expose upon it. P. 156-57 he writes as follows: Auf der anderen Seite ist es nur zu begreiflich, dass Kant in einen (wirklichen oder scheinbaren) Zirkel geriet: denn wie soll man das Vermögen zur Methaphysik untersuchen, wenn man es nicht irgendwie an seiner Aufgabe, also doch im Blick auf die Untersuchung metaphysischer Gegenstände, messen kann? In another place: Soll die Kritik ursprüngliche Kritik der Erkenntnis in ihren Prinzipien sein, dann muss sie zwar diese Prinzipien als gegeben voraussetzen, aber ohne sie selbst mit ihrer eigenen Hilfe wieder erklären zu wollen, p. 159. In the same journal vol 41, 1936 an article by *Hugo Dingler:* Methodik statt Erkenntnistheorie und Wissenschaftslehre, the author discriminates between two connotations of epistemology: (a) a theory of present cognition, (b) a theory of cog-

nition that has to be attained, p. 346. Wie kann eine Theorie vorhandener Erkenntnis gegeben werden, ohne selbst schon Erkenntnisse dabei zu benutzen, also voraussetzen (Hegel), p. 346. From the time of Locke epistemology was conceived as in connotation (a), p. 347. Kant's attitude is divided. In accordance with Kant he emphasizes the circular conclusion in empirical psychology: Versucht man, wie es z. *B.* von Fries geschehen ist, Logik und Erkenntninisteori auf die Wissenschaft der Psychologie zu gründen, so liegt offenbar eine sogenannte Zirkel, oder, um einen Ausdruck der alten Skeptiker zu gebrauchen, eine Diallele vor, p. 374. Notwendige Vorbedingung eines solchen Zirkels ist also, dass zu begründende Dinge benutzt werden, bevor sie diese Begründung erhalten können. Daraus folgt schon: Die Verwendung von Nichtzubegründendem kann keine Zirkel verursachen, auch wenn dabei Worte benutzt werden müssen, die äusserlich identisch sind mit später zu begründenden Begriffen, p. 375. At the end of his text book: Formel-Logik (Formal logic) 1938, *Frithiof Brandt*, exposes upon the question of circular conclusion by logical principles, p. 92.: "If the logical principles are basic principles they are unprovable, because as such they are principles underlying all proof. Consequently they themselves cannot be proved. However, as the logical principles are discovered by analysis we cannot feel certain of having conducted the analysis to the last instance. It is possible that there remains logical principles to be discovered beyond these ....., If someone is going to deny the validity of the principles fixed he must erect other principles and reason from those. That, however, does not seem possible. For instance, if someone would deny the validity of the principle of identity, although thinking that he must maintain the denial if the whole matter is to make sense, in this way he has already acknowledged the principle of identity. Or, for instance: a person who doubts the validity of the principle of duality, at the same time thinking that it is either valid or invalid, has already through his hesitation recognized the principle of duality.

Page 152-54.

ON HUME'S ATTITUDE TO OUR COGNITION OF THE EXTERNAL WORLD

In Book I I have remarked upon certain contradictions in the various parts of the works of *Locke*, one part being more dogmatic and others more sceptical. The same seems to be the case in the works

of *Hume*, although to a lesser degree. It seems that Hume began by fixing his psychological starting point—which he obtained chiefly by studying Locke. Afterwards he employed it here and there (although without any coherence), especially in the most important epistemological questions, i. e. he treated them each in turn, connecting them only by his criticism of the notions of space and time etc. from the same psychological point of view. Hume did not seem to realise that the conclusion which he arrived at in his treatise on the objectivity of the sensual world had to be applied also to the investigation on the relationship of causality as it would influence this to a large extent. In his Treatise he has not colligated Part IV with Part III. Accordingly a strange contradiction is noticeable between the conclusions arrived at in these two parts. In Part III Hume was at the height of his investigation of causality, confirming his main conclusion with the words: Therefore necessity lies not in the objects, but within us. With this sentence he so to say hits the nail on the head, and in Enquiry the same sentence is the one to persuade popular opinion.

However, in Part IV the differentiotion between us and the objects disappears altogether. Hume describes it as fumes of fancy. The cognition of an external world and its objects is here stamped as pure fiction.

Hume tries to maintain that our cognition of an external world is derived neither from (a) a sense perception, nor from (b) a mental act. The assertion (a) is correct, (b) incorrect. Hume intended to prove (b) by referring to the fact that children and simple people are apt to believe primarily in the presence of external things, while they are quite ignorant of the learned arguments employed by some philosophers in their attempt to prove the existance of an external substance. This argument is fallacious. Cognition of an external world is found in all people, scientists, children and simple people alike, not with consciousness, reasoning or arguments, but in the instinctive use of our normal faculties of perception—discrimination and comparison, apprehension of time and space and relations of causality, and among those (as shown above) particularly with our faculties of discriminating and comparing. This faculty teaches us to discern sharply between reality and dream, between the external sensual world, which appears independent of our desires or volition, and these last mentioned, our inner world. We do not have to be scientists in order to comprehend this discrimination. Already from our childhood we are taught to discriminate—emphatically and bitterly.

Page 161.

THE VARIOUS THEORIES ON THE RELATIONSHIP BETWEEN MIND AND BODY

As has been mentioned in the text, numerous philosophers have made strenuous efforts to solve the problem of the relationship between mind and body, and the most varying opinions on this question have been advanced.

(1) Monism, or the doctrine of unity, takes different forms:

(a) The spiritualistic monism: all is spirit, a theory which may take different forms:

I. Two worlds exist, the Me and the so-called external world, but both of them are one beeing or substance; both of them are spirit, (The spiritual monades of Leibnitz); or

II. Everything, also the external world, are but experiences within ourselves (Berkeley, Hume, Iversen). This theory may be called Mentalism. However, in Mentalism different theories are avanced as to the causes of our experiences. Berkeley thinks that God creates our experiences of the external world. Hume only remarks that these experiences arise from causes unknown.

(b) The materialistic monism: all is matter, materialistic substance and its movements. What we call spiritual conditions, phenomena of consciousness, are movements in the material particles of the brain (Hobbes); this opinion is illustrated by Cabani's saying: The brain secretes thoughts as the liver secretes bile.

(c) The form of monism which asserts that spirit and matter are two different apparitions of the same all-substance (Spinoza).

(2) Parallelism. This theory—contrary to (1) c.—maintains that there is no identity between the psychical and the physical, but these two phenomena appear parallel to each other. To each and every psychical phenomenon, thought, sentiment, volition, corresponds a parallel material brain process; however, according to this theory no causality exists between them.

(3) The psycho-physical dualism. This doctrine asserts that there is a fundamental difference between the psychical, i. e. the human consciousness, thoughts, sentiments etc. and the physical, i. e. the corresponding brain processes and nerve processes, and that these two

groups of phenomena appear in a reciprocal interaction with one another. In accordance with our apprehension we generally explain them as follows: the physical, the external world, is through the psysical processes of our senses, nerves and brain the cause of the psychical, i. e. the sense impressions and apprehensions appearing in our consciousness; and vice versa the psychical, in particular the decisions of our will, are the cause of nerve and muscle movements, and through these also cause changes in the outside world.

Among these theories monism in all its forms is, as I have proved (1 a c), untenable for the sole reason that the fundamental human faculties of apprehension, discrimination and comparison show a definite difference between the physical and the psychical, and because a denial of this difference at the same time would mean a denial of discrimination and comparison, of logic as a whole, and in this way also monism is denied because this theory, like every other theory, is unable to express a thought if this faculty is not intact. If this basic error in scientific method had been discovered, all of this colossal speculation and literature on the monistic theory, idealistic as well as materialistic, from times immemorial until the present day might have been avoided as being entirely superfluous.

Parallelism correctly states the essential difference between the psychical and the physical. However, while it avoids the self-contradiction of monism in denying similarity and difference, it overlooks the fact that the psychical and physical phenomena show us something else besides differences and similarities (the latter between the two groups reciprocally). As mentioned, they show us also two phenomena in time succession, a cause-effect-relation according to our usual way of apprehending it. There is a difference in time between the decision of my will and the subsequent movements of my muscles; and in this way I directly experience cause and effect. This is really the form of causality best known to us, the most direct and vivid of all. Also, there is a difference in time betwęen light- and sound-effects emanating from the universe and reaching our consciousness. Also in this instance we feel the cause-effect-relation directly and intensely between the event and our experience. This is felt the more intensely when the occurrence gives pain. But also without pain cause and effect are experienced directly. When a gleam of light makes the eyes blink, cause and effect are experienced vividly, even if they do not bring an unpleasant feeling. It is quite possible that each psychical experience, every thought, sentiment, emotion etc.

corresponds to a slight movement in the brain cells, even if we are unable to observe it; but we cannot ascertain the crucial point when the movements of the cells in the brain are transferred into the different phenomenon: consciousness, the corresponding thoughts, feelings etc.; therefore we must soberly content ourselves by ascertaining the difference and succession in time between the two phenomena, the effect of the physical on the psychical, and this latter per se, and our experience of the cause-effect-relation between the two.

It is clear from the above that the only scientifically tenable theory in this province is the psycho-physical dualism (3), provided that this opinion is freed from all concepts of an eternal soul substance and similar quite unprovable speculations and that, taken as a whole, it is limited to sober assertions of difference, succession in time and causality between the psychical and the physical phenomena.

This being the result of uncovering all basic delusions—as I have tried to show in the text—it means that we need no longer occupy ourselves with all the speculations of the past concerning the problem of the relationship between mind and body, and further that the extensive present-day literature, which seems to feel in duty bound to devote itself to this problem, in future can be spared or considerably simplified. All the copious argumentations and discussions on the various speculative theories (1, a, I, II b, c, 2) which have taken up time and space can be dismissed from literature in the future, because the fundamental error in the scientific method is elucidated; from now on scientific thinking may transfer itself to more fertile fields of investigation.

Willian McDougall, in his work: Body and Mind, has given a description of the theories mentioned on the relation between mind and body and has himself made a contribution to illuminate this question. His remarkable historic exposition on the numerous different ideas maintained from times immemorial to the present day on this question in religion, philosophy and science is valuable (1-148). But the subsequent extensive examination of the arguments for and against the various theories involves too great an effort in proportion to the value of the refuted assertions. When the majority of these theories are based upon the basic error in scientific method—as demonstrated by myself—it seems unreasonable to lose oneself in lengthy explanations concerning them. From his deep insight in the theme McDougall himself adheres to psycho-physical dualism, the only reasonable, scientifically proved doctrine. He also calls this theory animism because, contrary to all one-sided materialistic opinions,

it maintains the independent character and being of conscious life or the human mind—differing essentially from the phenomena of the body. However, in my opinion, McDougall might have spared his effort of fighting materialism or giving his work the sub-title "A defence of animism", because, as shown above, animism or the psycho-physical dualism is not in need of defence, being quite simply the only scientifically tenable opinion; on the contrary, all the other theories, among them the spiritualistic and materialistic monism are not only in the defensive but quite exploded, as speculations lacking every scientific proof in accordance with the fundamental means of cognition.

When *Harvey* had discovered the circulation of the blood and *Borelli* had discovered the mechanism of the respiratory system and after the subsequently asserted coherence between the circulation of the blood and the system of respiration, it is excusable that for a period people indulged in naive materialism, believing that it was possible to explain all physiological and spiritual processes in a physical mechanical way. In the 17th and 18th centuries the ruling idea in physiology was the perception of the organism as a physical mechanical piece of work. During the 19th and 20th centuries this mechanical perception of things was abandoned. Even in the province of purely organic life, modern biology long ago recognised that organic activity even in the simplest of cells cannot be explained as a physical chemical process. Not one organic function could be explained as a physical chemical process. Concerning the phenomenon of consciousness or spiritual life modern science recognises that here we are facing a problem which can never be explained from physical chemical assumptions. During the 20th century, biology, explaining the difference between the faculties and appearances of the genotypes and their mutations, showed—as mentioned above—that the external influence, which in the early period of Darwinism was given as the simple cause of the alternation and development taking place in the types of life, is quite inadequate as an explanation of the appearance of new types of life. To a great extent modern brain-physiology has succeeded in localising the brain functions in definite parts of the brain: physiologists have ascertained the great importance of the cortex for the higher spiritual activity, both intelligence and morals being dependent on the condition of the cortex; finally they have ascertained the close relationship between the development of conscious life and that of the brain. This assertion proves valid both for the development of the individual (from childhood to adult age) and for the development of the races, the relative volume and weight of the brain being largest in man and the higher animals. All of

this naturally shows the close coherence and interaction existing between the psychic and the physical and does not allow for any mechanistic conclusions to material monism. See further on these matters *McDougall* 94 seq., 99 seq., 224 seq., 235 seq., *Frithioff Brandt* I. 58 seq., 71 seq. *Jørgen Jørgensen* 288. McDougall rightly discards parallelism see 221 seq., 227., 277., 335 seq., emphasising that the only causality we are able to understand is the psycho-physical, 208 seq. He is also right when he remarks that the psycho-physical dualism adheres to the basis of scientific experience, that it does not force anyone to submit to any definite metaphysical doctrine, leaving the question of the real nature of body and mind open. It also leaves every one free where the question of religion is concerned, taking no sides against this, 192, 356 seq. It is correct to say that psycho-physical dualism, like all true science, holds an absolutely neutral attitude to religion.

Herbert Iversen also gives his opinions on the questions of the external world, the self, and the relation between body and mind. The whole of the external world is nothing but a mental process, an experience in our consciousness at a certain moment—also called the Sigma-position by Iversen. Before this all apprehensions like substance, also material substance, and accidents fall, because we have never experienced anything of th kind. When the external material world falls before the Sigma-posi on, the relationship between body and mind or conscious life also falls away. All is consciousness, apperceptions within us. Consciousness, however, only consists of a number of changing conditions, not of a su bstance or a special Me. On the Me Iversen has the same opinion as Hume, and he quotes the whole of Hume's exposition on this theme (Tre atise I Book IV, 6) beginning where Hume declares that on looking in o himself he sees a great many alternating conditions, differing fror i one another, of heat, cold, light, shade, love, hate, pain and pleasure, b ut he never finds himself. He only finds "a bundle or collection of differen perceptions succeeding each other". In accordance with this exposition of Hume's Iversen considers that the whole apperception of the Me ha s broken down. But shortly afterwards he adds that his only objection to the opinion of Hume is the use of the expression bundle or collection. Iversen considers this a little careless, because the different human states—as Hume himself declares—are successive and therefore never to be found collected anywhere. It would be more to the point to say series or chain, v. Iversen 182-86, 208. However a change of terminolo y does not remedy the confusion of ideas under which both Hume and Iversen suffer: neither Hume nor Iversen can avoid this psy-

chical phenomenon whether it is called a bu or a collection, a series or chain; and our acute discimination serts through these expressions that our consciousness contains m than the multitude of different mental experiences such as emoti thoughts etc., i. e. something that is "binding", "uniting", "cha" the experiences together into a unity in spite of differences—ort: the Me. Hume and Iversen are searching in vain for this fun ental fact, and this indicates their scientific self-delusion, they are ching for the shoe which they are wearing while looking for it; wh arching in the soul for the Me and observing numerous different s ents, emotions etc. and their deviation from the series or collecti hey are using the very same discrimination which asserts that th is a fact different from anything else. These philosophers are unal see the wood (i. e. the Me) for the trees (i. e. the isolated experienc e Me). We cannot employ the faculty of discrimination and comp and logic in one re[illegible] process deny its use elsewhere. r these philosoph-
-[illegible] and then suddenly es the ruling idea ma'ted experie consciousness is ers' differentiation betwen the isolated piece of wo they themselves correct—then the Me qua perception is also n of things periences; or dis-discriminate between the bundle or chain and th ern biology is incorrect—criminating the Me as based upon its isolated experiences lls ce the whole of and in this case the differentiation of Hume and Iverse unc may state the their logic and their investigation, is incorrect. Thus w ti he ncovered, all following: when this scientific self-destruction is finally es y Hume and future expositions on the Me such as those contributed L ph Iversen may be discarded as being superfluous. inf ill admit no pe e same way

Ernst Mach holds to the theory of monism, and he w [illegible] al I, 260 seq.). difference between an external and an internal world; in th pl in method, he denies matter as a unity and the Me as a unity (cf. Book lif e and Iver-All his expositions on this matter rest upon the same error ; lescriptions the scientific self-destruction, just as do the opinions of Hum ca elusion are sen, and monism as a whole; therefore these, like all such remain valueless when the self-destruction and the basic d exposed. a

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It would seem clear from what is shown in the text above that dog- r in scien-matic *behaviourism* is based upon the same fundamental erro nising as tific method as monism taken as a whole. Behaviourism recog als, and objective facts only the external movements of men and anim rialism; leaving conscious life out of account, is a naive kind of mate

even its own basis has not been critically thought out, and we note a curious state of affairs when even within its own particular way of thinking this form of behaviourism gets stuck. All-round behaviourism maintains correctly that the observation of external behaviour and psychological introspection supplement one another in a valuable manner, and it has thrown light upon several problems to give fruitful results; on the other hand, the one-sided dogmatic behaviourism very soon proves to be barren and really is unable to make any progres with its narrow explanations. The example so often discussed and much overrated (as given by this behaviourism) of the young animal in the cage is rather inexplicable to general logic: when the animal has received numerous associations among its many random movements, its many random grips about the bars of the cage, and at last makes a single movement leading to the food, why does it not continue these numerous random movements the next time it is put into the cage? Why does it make always fewer random movements and finally discard all of them, choosing the one movement leading to the food? This choice, excluding all other possible movements in the future, cannot at all be explained without the psychical observable phenomenon: a volitional decision in accordance with purpose, intention, i. e. satisfaction of the craving for nourishment. Köhler's apes showed still more clearly this choice in accordance with purpose, even as a result of reflection, an understanding of the means leading to the food. Now, it may be assumed that besides these movements and the passing of the food into the stomach and intestines of the animal, a movement also takes place in the brain cells corresponding to the feeling of satisfaction, the pleasure ensuing from being satisfied and from the movements leading to satisfaction. This movement in the brain cells indicates the choice in future movements and thus stamps some movements as being random, others as expedient. However, even if a movement takes place in the brain cells, the animal's feeling of pleasure is distinct from this. My thought, my feeling of pleasure at the moment probably corresponds to an external movement in my brain cells, but it is not identical to it. If I were feeling happy about an event, and if simultaneously—by using specially constructed binoculars —I were able to watch the movement i my brain cells corresponding to this happy feeling—this emotion and my external sight impressions would remain two absolutely separate experiences. I have two (2) experiences, not one. Like animals, man has many unconscious reflex movements; but at a certain point a purely psychical phenomenon turns up: consciousness; we become conscious of a reflex movement, a sense

impression, an apprehension. Everything taking place inside the brain, the cortex, is unfortunately hidden to us; but, if at some future time we should succeed—by means of the special binoculars or miscroscope mentioned—in observing even minute movements in the brain cells, this addition to consciousness could perhaps also be noted. However, whether this could be observed or not, the fact remains that I am conscious of a movement, a sensation, an emotion, and this fact is fundamentally different from any material movement in the brain cells.

The one-sided dogmatic theory of behaviourism is actually unable to explain men's or animals' choice of the movements required to uphold their organism; and the fundamental fact called consciousness is in the same way completely inexplicable according to this theory. However, all things considered, the decisive objection is that the entire dogmatic behaviourism rests upon a fallacious scientific method, an uncritical use of the ultimate epistemological presuppositions. It denies the fundamental differences in existence—the difference between external movement and psychical choice, purpose and satisfaction, the difference between reflex movement and consciousness—in short, the difference between the external and the internal world. But it is not able to think one thought or observe the external movements or reason on these in its own narrow-minded way without everywhere employing the discrimination which it denies. After the disclosure of this naive epistemological delusion, this form of behaviourism can no longer be upheld scientifically.

Finally, I should like to say that, if we were made to choose between the monistic doctrines, then without doubt the mentalistic would be preferable from a scientific point of view. The surest thing of all, the surest knowledge in the world, is decidedly the experiences in my consciousness. Our perceptions, thoughts, emotions, volitional decisions, our aims, desires, our purposive acts—these are the things best and clearest known to us. We do not know what the external physical movements in the outside world really are. When dogmatic Behaviourism states that it does not know what it is "to think" or "to feel", then the answer is that at the very moment when the behaviourist says so, he thinks and feels polemically. This he knows from himself; but strictly speaking we do not know what movements of external bodies are, whether the movements originate by shock from one body to another, or by distant effects, by the falling of bodies against the earth or by their revolution about the sun. Of this we know nothing at all. And the most remarkable thing is that when we try to explain these incomprehensible pheno-

mena: external movements, to ourselves, then we have to resort to our own internal psychical experiences, our own volition, our feeling of muscular strength, as the cause of movements. These are the only things we really understand. Of all causal relations the internal psychical relation of cause and effect is the only sure one, the only one we fully understand. We can comprehend the external movements and their causal relationship only by analogy with this causal relationship within ourselves. When the naive dogmatic behaviourist puts quotation-marks to "think", "feel", "will" and "satisfy", to act according to a "purpose", thereby signifying things he does not understand, it means to him that we cannot comprehend these psychical phenomena qua external movements. When he wishes to explain the psychical qua external movements, he is obviously trying to enforce his individual opinion upon others. However, "to understand", "to explain" means deriving something at this instant unknown from something beforehand known. External phenomena in the surrounding world may be explained from other external phenomena, e. g. heat as movements of molecules, electricity as movements of electrones and ions etc. When we call certain movements of bodies "known", it only means—as mentioned in the text —that they are familiar to us in our everyday life (therefore we normally pay little attention to them), but in reality we do not comprehend them and cannot explain them, because we are unable to derive the movements of external bodies from other known external phenomena. The kinetic theory of heat and the atomic theory actually only mean that our ignorance thereby is moved a step or simplified, i. e. directing two or more inconceivable phenomena—heat, electricity etc.—to one inconceivable basic fact: the movement of external bodies. If we want to understand this final external fact, we must, as mentioned, resort to the only fact really known to us: our psychical experiences, i. e. employing the concept of power as an explanation of movements in the surrounding world, because power is the only cause we really know, that is to say, from ourselves. Instead of putting quotation-marks to "think", "will", "feel", "decide", we ought to abolish these typographic attributes of ignorance and instead supply the connotations "external movement", "external bodies", "physical causes" with these indications of our non-comprehension. However, as the greater part of this world is incomprehensible, this typographic custom had better be abolished—its only effect is to make the reading of a text insufferable.

At meetings or congresses of the so-called physicalists (or dogmatic behaviourists) the participants have repeatedly stated: I do not know

what it is to think, to feel. It is more remarkable that not one participant ever rose to state: Neither do I know what it means to move in the so-called outside world, what kind of phenomenon movement is. Thus the scientific basic error behind physicalism would be disclosed. Only then a thorough examination could proceed on the questions: what does it mean, what is it to know, to understand? The physicalist ought really to answer: I do not know what it is to know, to understand; neither do I know what it is to think—and so all thinking activity would be suspended. The physicalistic meeting comes to an and, never to be re-opened, and the publishing of physicalistic literature or psychology on physiological basis will cease.

When the monistic opinions are suspended as untenable, it may be stated that two basic facts exist which cannot be desolved into parts or be derived from anything else within the same category: (1) movements of external bodies, (2) internal psychical experiences. Of these two insoluble, irreductible basic facts we know our own experiences best, and we only arrive at (1) the external physical movements, as well as at an apprehension of the external world at all, through discrimination, comparison and all other human faculties of cognition: perception of space and time and of cause and effect. Lacking these activities of cognizance, all of them being internal psychical phenomena, the behaviourist could never arrive at cognizing or even perceiving the external world and the movements of its bodies. He cuts off the branch he is sitting on by denying the internal psychical phenomena.

The perception of the Me as a unity, in spite of the alternating different experiences, has obtained a valuable testimony through the experiences of modern experimental psycho-physics. Already the *Weber-Fechner* law stated the important phenomenon that the intensity of every sensation, within certain limits, is defined by the relation between the present and the previous influence. The proportion of time in the conscious perception of the successive influences is also most remarkable. Edgar Rubin has through a number of interesting tests proved that influences on different senses take different lengths of time to reach consciousness, for instance, the impression of a light-signal takes longer time to reach consciousness than does the impression of a sound-signal. The test proves that we hear for instance the sound of a bell quicker than we perceive a light-signal; e. g. the hand on a disk provided with marks passes the mark corresponding to the sound of the bell. The stroke of the bell sounds actually at mark 30, but consciousness perceives it as if it sounded already at mark 20, and viz: consciousness takes so long

time to perceive and apprehend the sight impression of mark 20 that it has not finished before mark 30 is passed; and mark 30 is not perceived before apprehension has taken place still later etc. The time of apprehension varies for the different sense impressions. This is a clear example of the important part played by our attitude in relation to our experiences. Our consciousness is not a series of isolated Sigma-positions, but it treats the various influences in coherence with one another. On the whole the preceeding parts of a sense impression are treated in coherence with the later ones. These and other experiments show that a certain time passes between the point when a sense organ is influenced and the point when we experience the things in the outside world. This is expressed above by stating that a relation of time and a relation of causality exist between the physical and the psychical, between the physical stimulus through the senses and the corresponding experience in consciousness, and the operation brings about a coherence and unity in consciousness.

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VAGUE APPREHENSIONS

The so-called abstract apprehensions may be divided into two groups of vague apprehensions, partly type-apprehensions (general apprehensions of objects and beings), and partly quality-apprehensions, for instance under the first group concepts like animal, bird, plant and under the second group concepts like whiteness, hardness, beauty. The most abstract apprehensions are those comprising the whole existence or very large parts of it, as for instance: the universe, substance, matter, spirit. A highly disputed question—especially in American psychology—is whether these very wide abstract concepts are quite devoid of images, i. e. devoid of anything in the way of sensations, such as sensations of sight, hearing, touch etc.

In my opinion, no concept, even the most abstract, exists which does not—at least in a slight degree—comprise some element of sensation, especially sight sensations. Even all-embracing conceptions such as the universe, substance, matter etc. contain image elements, even though vague and indistinct, different in different persons, as a rule elements of something indefinite, grey, obscure with indistinct outlines. Only where psychical things are concerned, consciousness, mind, we employ our internal experiences of thought, feeling, volition as elements.

All these vague, abstract notions are of course quite incomprehensible to a psychology such as that of Locke, Hume and their successors. They cannot be derived from any definite sensation, either simple or compound. They are fruits of our faculty of discrimination and comparison. By substance we understand all material things and spiritual beings existing in the universe apart from vacancy, which comprises by far the greatest space in the universe. Through the all-embracing conception: the universe, we at first think of the space of the universe and the multitude of globes, later on adding to this image the numerous objects and living beings existing on the globes.

Concerning the abstract negative concepts such as nothing, non-mental, invisible, non-existing, das Ding an sich (the non-apprehensible) philosophers like Locke, Hume and Iversen have the greatest difficulties. Iversen calls them impossible concepts—from his point of view he is right, because he is unable to explain them, cf. Iversen 67. We have no sensations and no experiences of a nothing, non-existence, non-red etc. Only our faculty of discrimination, this our most acute logic faculty, dictates these concepts to us. They serve acutely to make clear to us what something *is not* among a multitude of phenomena. When after seeing the colour red we see the colours green, blue, yellow, black, white, we combine the mutual qualities of all these latter in opposition to the former—: i. e. that all of them are not red.

The extremely vague concepts of *vacancy* our thought is able to imagine by discriminating from everything having contents; but we cannot apprehend it exactly, in order to form a conception of it we must have recourse to obscure sense impressions like the indefinite grey or dark, i. e. representing what only our discriminating thought can comprehend.

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ON PRAGMATISM AND THE ECONOMIC EPISTEMOLOGY

Pragmatism asserts that absolute truth does not exist, and therefore the truth of all postulates, theories, doctrines only consists in whether they have beneficial consequences. However, in the Pragmatic school's use of the word "absolute" as to truth a certain obscurity is to be noted, and this is due to the fact that this school does not discriminate between what I have called above Reality (1) and Reality (2). We meet with this obscurity even in the best expositions of this philosophy, such as *D. L.*

Murray: Pragmatism, 1912, and *William James:* Pragmatism, 1907. An absolute truth, meaning: a cognition speaking with certainty of a reality (2), the world in itself, absolute reality, does not exist. On the other hand, it must be emphasised that it is not given or proved that our scientific cognition is not concerned with the world itself, i. e. Reality (2). It is possible that the atomic theory, for instance, represents absolute reality or the world in itself for us. Only we know nothing about it. And here we have to put a question-mark to the assertion of Pragmatism that no absolute truth exists, because Pragmatism just like the rest of us knows nothing about it. Here it is necessary for us to make a much more modest assertion: we do not know if scientific cognition represents the absolute truth, the world itself. Instead of the assertion of Socrates, that we only know that we know nothing, it is more to the point to state: we do not know if we know anything, i. e. of the world itself, of reality (2). Therefore Kant's theory of das Ding an sich, a world absolutely inapprehensible, is also untenable. We do not know and so we cannot assert that the world in itself is incognisable, neither can we assert the opposite.

But Pragmatism speaks of absolute truth contrary to relative truth; and thus we are in reality (1), our usual scientific conception of reality, which we certainly have experienced. When Pragmatism here states that all opinions, hypotheses are relative, that we can never assert anything of their absolute truth, that they may always be changed through new experiences, that their so-called truth can be proved only by seeing whether their consequences are beneficial or not beneficial, then this whole postulate is entirely deceptive. Here we are only concerned with reality (1), and within this reality we have facts which represent the absolute truth, never to be shaken; they can never become relative, can never be changed, i. e. the mathematical and logical axioms $1 + 1 = 2$; $a = b$, $b = c$, $a = c$; the straight line is the shortest distance between two points etc. Here we have no relativity, here we cannot speak of a working hypothesis to be altered later through new experiences. The mathematical and logical axioms have no need of referring to their "beneficial consequences", their "practical use" to prove their truth. They are quite simply true, irrefutable. They are absolutely true in the following connotation: they always fit in with reality (1).

And further, it is possible that they also correspond to reality (2). Pragmatism's explanation and definition of truth as assumptions having practical beneficial or useful consequences is quite superfluous and without meaning. William James had to admit this when he asserted that the

mathematical axioms are eternal truths; thus Pragmatism qua epistemology was really shattered.

The question now remains whether the truth or untruth of our experiential judgments in general is due to their beneficial or unbeneficial consequences, if our opinions, ideas, theories on reality (1) shall be judged only on the basis of these consequences. This question must unconditionally be answered in the negative. Experiental judgments such as: this rose is red, certain roses are red, certain one-headed animals have the qualities we find in the variety called horse, etc. are—as shown in the text—unconditionally true of reality (1). Neither is there any relativity in these cases; the mentioned judgments of reality are true irrespective of their useful or beneficial consequences for mankind, and they are not to be changed accordingly. Certain assumptions or theories may until further notice be considered probably true, for instance certain hypotheses on atomic processes, ruling explanations of phenomena such as electricity and magnetism. However future judgments as to these hypotheses or explanations being correct will not at all be conditioned by their beneficial or useful effects for mankind, but will solely and exclusively be dependent upon their corresponding with reality (1) after further verification through ever renewed experiences. Thus Pragmatism has overlooked that, besides the mathematical and logical rules and conclusions being eternal absolute truths within reality (1), our notion of reality itself is eternal and absolute as an unshaken basis for judging the truth or untruth of all experiential judgments, postulates and theories. Our image of the world may be altered, as for instance from the Ptolemaic to the Copernican, but this does not mean that the latter has more beneficial effects than the former, but solely that this last view of the world more truthfully represents reality in accordance with our later improved experiences. Neither does it mean that our notion of reality as such is changed according to its having unbeneficial effects. This idea, the notion of reality (1), is the irrefutable starting point and basis of judgment as to the truth of all our empirical judgments, perceptions and theories; the reason is that this notion of reality for all sciences springs—as shown in the text—from the same fundamental cognitive faculties or cognitive factors, i. e. our apprehension of difference and similarity and conformity to the laws of nature as do the mathematical and logical rules and conclusions, deductions.

These factors must spring ultimately from the source of the human emotions and only by groping, by the experimental methods attain to the satisfaction of human needs throughout the life of all mankind. No

postulate claiming scientific truth can take an easy short cut to the emotions, to their source, and avoid the difficult test by the cognitive factors, observation of physical and psychical phenomena, through discrimination and comparison and ascertaining of law-bound coherences. These factors and the notions of reality based upon them, the logical axioms and methods derived from them are the inevitable instances of the supreme court of truth.

The lay movements following in the wake of Pragmatism often employed another argument: they thought they could liberate their theories and dogmas from the test of reality and logic by the following line of argument, while admitting that they were unable to prove their postulate, they pointed out that the same was the case with science, which was also unable to prove its ultimate notions and presuppositions. The falsity of this way of arguing, which usually makes a strong impression upon uncritical audiences, is evident for the one reason that the ultimate notions and presuppositions of science cannot be added to arbitrarily at pleasure. These would soon take on the appearance of a lumber-room containing all sorts of subjective opinions fanatically maintained by one section of mankind and just as fanatically denied by another. The ultimate notions and presuppositions of science are employed by all people, without difference, also in their reciprocal argumentation and strife. The ultimate notions and presuppositions of science are the same as those I have analysed in the above as being the ultimate presuppositions for all cognition: the notion of reality, the logical axioms and the cognitive factors upon which the structure of this fundamental notion and these rules are based. However, these factors, the basis of all human knowledge, are but few and quite definite—the factors often mentioned: difference, similarity, conformity, time, space, sensation, introspection. The number of postulates and theories may be added to at pleasure; but the cognitive factors cannot be added to at pleasure. These alone represent the collected experiences of all mankind during its life throughout all times, being the only test existing of the truth of all perceptions and judgments.

Pragmatism and similar philosophies could easily become a danger to culture; spiritual laziness and inability to think clearly and acutely are the inmost characteristics of these shools, and they correspond well with the point of view of the masses. It becomes an easy task to think and reason when you can prove everything, for instance such different doctrines as the dogma of the temperance movement and the dogma of punishment after death; the former is considered true because

it has beneficial effects upon certain parts of the population, the alcoholics; and the latter is considered true because it has beneficial effects upon another part of the population, the criminals. Among other obscure theories within Pragmatism we must, as mentioned in the text, call attention to the mixing of descriptive and practical science; all opinions are proved in the same easy way by referring to their beneficial effects, quite apart from considerations of whether the opinion lies within the realm of descriptive or employed science. Otherwise, only in the province of the last mentioned science we may speak of finding proofs or reasons for something by examining the beneficial effects. The idea of punishment in a life after this belongs to descriptive science. The notion of reality is decisive. But this idea cannot be proved as a reality by any science. Thus the scientific assertion breaks down and the notion must be referred to the sphere of belief, to the unprovable. The dogma of the temperance movement comes under the test of employed science. But the practical sciences which are to judge in this case—physiology and medicine—like all other employed sciences, are also based upon reality and its law-bound coherence, upon numerous experimental investigations as to the harmful or beneficial effects of alcohol, and not upon the experiences and assertions of a single group of people. This objective, experiental investigation on the part of science has not proved that these one-sided assertions are true.

Lastly, such trends of thought as pragmatism may in their consequences lead to such movements as fascism, nazism and political communism, which all want to control science, not in the interest of objective truth but in the interest of the community they have founded. Stat pro ratione voluntas.

An acute and profound exposition of pragmatism is given by *R. B. Perry* in his valuable book: Present philosophical tendencies. 1912. pp. 197—268, 349—378. Perry is right when he maintains that some of the objections, which have been put forward against pragmatism in general, do not affect William James' pragmatism. But the fundamental one does.

When his economic epistemology is thoroughly studied, the opinions of *Ernst Mach* show trends of thought related to Pragmatism, and to a certain extent based upon the same error of thought. He sees the truth of a general concept, a hypothesis, in their "Erfolg", in their expedient thought-economic adjustment; in order to be consistent he must also see the truth of the general concept: external things, of the Me and the outside world as a whole in such an expedient adjustment, and here he is taking a dangerous road, viz: considering the truth of a concept, a

representation, an opinion to be proved through its practical, useful consequences—just like Pragmatism. But this is and must be wrong. The truth of every representation, every concept, also every general concept, can never be proved through their useful, expedient consequences, but exclusively by showing their agreement with: *reality* and the *logical axioms* and the experimental methods based on these. A general concept such as: horse, is not true because—as asserted by Mach's economic epistemology—it is a thought-economical simplification of reality to compound a multitude of separate beings, the numerous horses on the globe, into one representation, the general concept: horse. No, the general concept: horse is true simply because it contains all the elements and qualities which are repeated in the numerous horses of reality and are common to all of them. If the multitude of horses in the real world did not contain these common elements, these similarities, we should stand quite helpless with all our striving towards simplicity. However, the real world fortunately does contain simplicity through its many similarities amindst the differences.

Simplicity, the simplified, in reality—just like all reality, like the whole concept: the real world—is due to our cognitive factors, our perception of differences and similarities and law-bound interrelations among our observations. But these factors also show us a world of differences besides the similarities. Whether the simplicity, the common factors, the similarities represent the simplifying of our mind, adjustment, the ordering of an external world in chaos, or the simplicity, the similarities are to be found in the world itself, reality 2—that we know not at all.

The opinion of Ernst Mach and Pragmatism on the human cognition qua "adjustment", "expedient arrangement" of an experiential matter is nothing but a repetition of Kant's theory on our mind forming the experiential material, only clad in the garment of the Darwinistic teaching on evolution, cfr. I book 370-74.

But whether this doctrine on form and matter presents itself in one or another garment, it is—as I have shown in the text—quite unprovable. We know nothing at all of the thing called by this philosophy the form of cognition, the order and adjustment of our mind, whether it corresponds or originates with or does not originate with the world itself—reality 2. Neither do we know at all if matter originates with or corresponds with this reality or does not correspond with it.

Mach also tries to take the easy road—in the text called the road from *D* to *A*, avoiding *C* and *B*. But this short cut is, as shown, barred. Every universal concept, taken as a whole, all basic conceptions of science,

basic rules, laws, all doctrines, theories, must take the hard road through *C* and *B*, through the trial before the court of reality and logic. But reality and the logical axioms must again be tried before the supreme instance: the cognitive factors. The trial and analysis of the notion of reality itself and the logical axioms on the basis of the cognitive factors—which I have attempted in the preceding exposition in the text—were neglected by economic epistemology and Pragmatism.

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As is often the case with the older speculative philosophers, *Leibniz* yields an obscure mixture of justified opinions and quite unwarranted conclusions. For instance, we find parts which are correct in his definition of power as the thing in the present situation which effects a change in the future. However, he states that the infinite divisibility of extended matter shows that the ultimate units cannot be extended, material, and accordingly must be mental; against this assertion we must remark 1) that the infinite divisibility is unprovable and is not supported by any sense observation, and 2) that the deduction from infinite divisibility to the mental character of matter is quite unwarranted.

A large number of all-embracing notions are included in philosophy and several branches of practical science. Besides those mentioned in the text. I should like to use the following notions of romantic philosophy as examples and viz: To be, not to be, to become, and a concept playing an important part in modern philosophy, "totality" or "unity". Philosophers like *Rickert*, and to a certain degree also *Høffding*, have raised the latter to a category and they have been misused even in the sociological field; in reality they are quite empty, cf. the note E. R. I 74-75, cf. my treatice in T f R 1930, 153 seq. Another example of all-embracing concepts is the concept of motion of Heraklit and Hobbes. It is a well known fact that these philosophers considered everything as motion, comprising both the movements of external objects and the internal phenomena. Hobbes apprehended sentiments, moods, voluntary, decisions only as movements in the cerebral matter.

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Present day medical science has already started advising suitable physical exercise or manual work within certain limits as cures for certain kinds of illness particularly rheumatism. Vice versa, certain kinds of rheumatism may be caused by too hard monotonous physical work or exaggerated and one-sided sport. (The expression rheumatism com-

prises, as we all know, highly different infirmities). When the gums and teeth are weakened and decayed, modern dentists examine the connection between such infirmities and the composition of the diet (the vitamin-problem) and advise the natural use of the teeth and the massage of the gums involved in adequate chewing of the food; this is also the means of preventing certain intestinal troubles. However, this is, taken as a whole, a physiological problem demanding a further investigation of the cause-effect-relations, viz: whether and to what extent a natural way of living, including physical exercise or work in the open air resulting in a stronger circulation of the blood, influences the general condition of the human body, local infirmities and resistance as a whole. The investigation of this problem is subjected to very great difficulties because, if the researcher is to gain definite results, he must work and experiment on a very large number of individuals during a relatively long period. Besides paying attention to the local illness and its special treatment, specialists in all provinces ought to have their attention turned to the general condition of their patients, to their individual mode of life, and try when possible to direct their form of life into more natural channels; in this way the science of the specialists would gain an extensive material of experiences throwing light upon this central physiological problem of medicine concerning the influence of the personal way of living upon local infirmities and on various illnesses as a whole, a problem of the greatest ethical significance to humanity.

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It is well known that *Sigmund Freud* and his school in particular developed a theory on the repression of certain groups of emotions and representations—complexes—(especially sexual) preventing their free growth and development, thereby being supposed to cause neurotic, especially hysterical, sufferings. The so-called psychoanalysis is employed as a treatment to cure these conditions, i. e. an examination, mainly consisting in interrogating the patient on his recollections of earlier experiences, interpreting his dreams as expressions of such repressed complexes etc. No doubt, Freud did good work by drawing attention to these phenomena and the treatment mentioned above; but he exaggerated its importance and he was unwarranted in generalizing it far beyond the strictly limited region covered by his experiences. We have an extensive foreign literature on the theories of Freud, speaking for him and against him. In Danish literature the theme was treated by *Hjalmar Helweg:* Om Sjælesorg. (On mental hygiene) 1932, 150 seq.;

and *Carl Jørgensen:* Psychoneuroser og Psykoterapi (Psychoneuroses and Psychotherapy) 1932, 33-80.

The work: Sexual behaviour in the human male, by *Alfred C. Kinsey, Wardell B. Pomeroy* and *Clyde E. Martin*, 1948, brings extensive and very valuable materials for further investigations, of great interest both for medicine, jurisprudence and other social sciences. But it is not possible to draw certain ethical conclusions from the materials of this report because one does not know with any exactness the effects of the varying frequency of the sexual intercourse on the capacity for deep intellectual work, for the intensive high feelings of happiness in love and beauty, shortly for all the most intensive spiritual happiness.

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See *Frithiof Brandt* I 83-86 on the human brain as compared to the brain of the animal, its relative and definite weight and the development of the brain. On the cerebellum and the cerebrum—the last supposed to be the seat of conscious life—see also p. 72-75.

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ON BUDDHISM

The greatest and most thorough work on Buddhism in Nordic literature is *Paul Tuxen's:* Buddha, Hans Lære, dens Overlevering og dens Liv i Nutiden. (Buddha, His teaching, its tradition and its life in our day) 1928. A profound exposition on the philosophy of Buddha is also: *V. Grønbech:* Mystikere i Europa og Indien. (Mystics in Europe and India) 1925, p. 195-43. On the rich foreign literature, see Paul Tuxen's above mentioned work, V. p. 299-301.

To *Buddha* life on earth was nothing but suffering. Three things, all of them evidences of vanity, had made the deepest impression on Buddha: illness, age and death. According to the tradition, Buddha was in his youth a prince. He lived happily at his palace together with his wife and child; his father watched carefully over him preventing disharmonic, disturbing impressions from the world outside to penetrate the walls of the palace. And yet, one day on an excursion Buddha happened to see a bent, tottering old man, another day an ill person convulsed with suffering, and later on, a corpse. When he realized that he too was subject to all this vanity, illness, age and death, he left his palace and his family and went out into loneliness. His father, the king, tried to keep him back, but

the prince told him: If you will give me four things I shall always stay here and never leave you; I wish for myself: never to get old, to live in eternal youth and beauty; never to fall ill, and to live eternally, never to incur death.—The king is unable to fulfil his wishes; and so the prince is content to ask for one thing: once dead he shall not be reborn into a new existence. However, his father cannot fulfil this wish either, and he lets his son wander on his way to the salvation of the world.

It will be clear that Buddha's motive for renouncing all desire and thus leaving the mournful existence of man was the deep pain of knowing that nothing in the life on earth is unchangeable, eternal, that all happiness vanishes. The sufferings in life are not exhausted with the three great sorrows, illness, age and death. To be separated from what is dear to one, is suffering, to be united with what is not dear to one, is suffering, to fail in obtaining what one wants is suffering.

It is desire that binds us to this existence, therefore all desire, all sensual enjoyment must be abandoned. The lamp will be extinguished from lack of fuel, when the old oil is used up and we have not taken care to fill in new oil; in the same way desire will vanish in the person who adheres to the apprehension, that everything connected with existence is vanity; together with desire all striving, existence, birth, age and death will vanish. Desire and longing make man unable to resist illness, age and death, make man lament these misfortunes in despair.

According to Buddha a profound law of responsibility penetrates all existence in so far as all thoughts, feelings and acts result in consequences which may either entangle us deeper in existence or loosen us from it. Therefore the wise man will well consider all his thoughts feelings and acts.

In the holy books of Buddhism a number of commandments are laid down, and different ways are recommended as leading to a life according to the spirit of Buddha in order to attain the goal, i. e. the suppression of the desire for life. These commandments and ways in strictly human relations also lead to the right ethical conduct towards your neighbour; however, this is secondary in comparison to the great goal, the liberation from existence in the form known to us. There are five commandments: Do not take the life of your neighbour; do not take what is not given to you; do not live unchastely; do not tell lies; do not drink intoxicating drinks. Two of these commandments are directed against lower desires; acts of hatred against others and hurting others are the consequences of these and all other desires for material enjoyments; against those the rest of the commandments are laid down. Sensual desire breeds passion,

hatred, enmity, violence against the life and property of others. Therefore you must renounce enmity and cruelty, lies, slander, manslaughter, theft and debauchery.

If we can free ourselves from all desire, we are saved from suffering. The way to the cessation of suffering is the holy eightfold way: right opinions, right decisions, right speech, right action, right living, right striving, right thought and right self-absorption. Cf. Tuxen, especially p. 52, 53, 143, 152-53; 195-96; 145, 213 and 237; 38-39, 71, 179, 198, 200-201; 191.

To the degree man succeeds in freeing himself from desire, in the same degree his next existence will be improved; when he reaches perfection he will be freed from any form of existence as we understand existence; he passes into Nirvana.

However, we should not assume that the majority of simple people in the Buddhistic countries share Buddha's dark outlook on life or his conception of the life hereafter. In fact, relatively few people—in particular the learned monks—have received the gift of lifting themselves to this philosophy. The greater part of the population are content with existence as it is, and most of them have some kind of belief in a life after death. Most people go from one existence or incarnation into another, better or worse according to their deserts. However, a great many perceive the supreme state Nirvana as a blessed state and not as absolute nihilation. So far we cannot define Nirvana; try which way of definition we might choose we should have to use general human conceptions of life and existence; and these cannot be employed here. Therefore it does not seem strange that there are a lot of different conceptions of Nirvana among the adherents of Buddha, extending from a blessed land to a purely spiritual state of sublime bliss, rest and peace, where desire, anger or infatuation do not exist, also including purely negative conceptions. In accordance with holy texts supposed to be original, the Me or Self in the connotation accepted by us humans of this world, is non-existing in Nirvana. Nirvana is the non-existence of desire, anger, delusion. "The one who has vanished into Nirvana is incognisable to us, and he has nothing by which we might design him; when all the pieces forming a part of his self are abolished, then all words come to nothing." As shown, a great many different conceptions of this main point exist, and one of the most profound expert scholars of Buddhism, *Paul Tuxen* epitomizes the result of his investigations as follows: A large number of "real" Buddhisms exist; the original Buddhism is a fiction. Tuxen 297, cf. 154 seq., 210, 288 seq.

Buddha does not seem to distinguish between the different senses. All of them seem to tie man to life. His dark outlook on life did not permit him to see that there are senses devoid of desire, which do not involve man in the usual existence of passion, sorrow, hatred, slander, theft, manslaughter etc. However, the five commandments show that Buddha, practically speaking, has the lower senses in view when warning against desire and all consequent sufferings and disasters for man. Neither did Buddhism in practice relinquish the world of art. The many magnificent temples in the honour of Buddha erected in olden times and up to the present day in the Buddhistic countries bear witness to this. Furthermore the question arises as to the observance of Buddha's teaching and its joys. According to Buddha the true observance can already in this life lead the wise man into abandoning desire. In three stages of the right way of self-absorption (the ultimate part of the eightfold road) the wise man attains contentment and happiness. Not before he has reached the last, the fourth stage is he said to obtain a state of spiritual balance, above and beyond pain and happiness. However, a state like that is psychologically impossible. In other places of the holy text the happiness attained through meditation is praised: "I know of nothing, monks, which through training can achieve so great happiness as thought; the thought trained becomes great happiness", cf. Tuxen 205, 268 seq.

Thus there are more problems, psychological and ethical, than the philosophy of Buddha has dreamed of. Epistemologically seen, the Buddhistic basic conception is not satisfactory either; like the corresponding opinion of Hume's it is based upon what I have called an epistemological delusion or basic delusion, see the text above, Note 186.

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In accordance with modern religious-historical research it must be assumed that the belief in gods and the belief in a life hereafter derive from widely different origins.

1. The belief in gods arose when man imagined beings analogous to himself behind the various natural activities. Behind the river, the sea, the sun, the moon etc.—all of them phenomena constantly changing and moving—primitive people imagined higher beings as driving forces. The belief in gods is thus from time immemorial a primitive anthropomorphous theory on cause and effect. These natural

powers were often violent and destructive of man's work; man was dependent upon them and therefore he tried to reconcile and assuage the forces of nature or gods by means of gifts, offerings; in the olden times often humans were sacrificed—later cattle and valuable things.

2. The belief in a life after death, on the other hand, must originate from a different source, i. e. in psychical phenomena like dreams, telepathy, hallucinations, etc. When primitive people saw deceased relatives in their dreams etc., it was for them an almost obvious conclusion that the dead continued to live. At first people thought that the dead continued their lives inside the grave and consequently their clothes, weapons and also their servants and wives should be with them and were sacrificed; several primitive peoples are still at the same stage in our day. Later on in the development a discrimination between body and mind is apparent, and the soul is supposed to liberate itself from the body in death, to wander somewhere else, originally to the underworld (Hades), later on to other vague places. Simultaneously with this later conception of the soul's independence of the body cremation gradually supercedes entombment.

The greatest pioneer work in the history of religion is *David Hume's:* Natural history of religion (1797). Among later religious-historic works we mention: *Max Muller:* Lectures on the origin and growth of Religion (1878), *Tylor:* Primitive Culture (1872), *Robertson-Smith:* The religion of the Semites (1884, new editions 1894, 1914), *Erwin Rohde:* Psyche, (1890-94, 4th edition 1907), *J. Frazer:* Totemism (1887, 2nd edition 1907) and: The golden bough (1890, 2nd edition 1900).

The assumption that according to modern research the basic parts of religious belief originate as above mentioned does not deteriorate from the value of this belief. Epistemology shows that nature and the so-called powers of nature and phenomena of life and death are equally as mysterious to-day as they were in times immemorial (see I book 299-318). But the existing religions must realize that they do harm and diminish the value of religion for modern people by retaining images and dogmas concerning things lying outside human apprehension, beyond our cognitive faculties. The world of the mind is a fact in the same degree as is the material world. But the relations of the mind to the material universe lies ultimately outside all relationships of cause and effect, time and space. Once all narrow-minded ideas such as creation, omnipotence, including the cause of the evils and catastrophes in the material world fall down, with them will fall the old hackneyed problem of the conflict between belief and knowledge.

ERRATA

P. 13, line 7 from below: declarations—should be: *declaration*
- 39, - 16 - above: vas—should be: *was*
- 42, - 16 - - : inferrence—should be: *interference*
- 48, - 6 - below: what—should be: *that*
- 57, - 17 - - : is—should be: *it*
- 59, - 4 - - : Greek society of ancient—should be: *ancient society*
- 60, - 7 - above: heaving—should be: *hearing*
- 60, - 9 - - : buide—should be: *guide*
- 61, - 4 - - : in the recently.....—should be: *recently*
- 62, - 2 - - : Here this—should be: *Here*
- 278, - 14 - below: dead—should be: *death*
- 279, - 17 - - : nutrion—should be: *nutrition*
- 294, - 17 - above: bedrawn—should be: *be drawn*
- 319, - 15 - below: juricial order—should be: *order of law*
- 398, - 8 - above: 319—should be: *259*
- 398, - 6 - below: 276— - - : *280*
- 399, - 16 - - : 278— - - : *282*
- 400, - 12 - above: 279— - - : *281*
- 400, - 17 - - : 283— - - : *285*
- 403, - 11 - below: 186— - - : *158*
- 403, - 10 - - : 335— - - : *337*