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BUILDERS *of* DELUSION

A Tour among Our Best Minds

BY

HENSHAW WARD

•

Thobbers, building on assumptions,
rear ambitious structures, as impressive
in architecture as in engineering.
—Joseph Jastrow, in *Effective Thinking.*

LONDON
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PART ONE
THE BUBBLES THEY BUILD WITH

BUILDERS OF DELUSION

CHAPTER I

Reason Need Not Be Proud of Itself

Imagine that three philosophers are sitting at an ebony table studying the motions of a Mexican jumping-bean. The bean is on a sheet of white paper that is lighted by a strong electric lamp hung from the ceiling. Near the table is a case filled with small jars of several hundred species of beans. On a shelf is a delicate pair of scales and a set of drawing instruments. Shelves of books are at hand—learned volumes on gravitation, levitation, kinetics, vital forces, spiritual values, food values, etc. The philosophers are prepared to attack the problem with all the powers of their reason.

For five days they sit in session, pondering, comparing notes, thinking out possible solutions, arguing developing techniques, laying out a program of methodology for the study of the bean—which continues all the while to give spasmodic hops.

At the end of their deliberations each philosopher writes an essay to set forth his theory of what makes the bean move. The first one argues for an Electrical Hypothesis: that some process of magnetization in growth has made the bean sensitive to the magnetic currents in the earth. The second philosopher has a psychological solution: that some vital principle in the nucleus responds to the ebb and flow of thought which goes on about the table. The third philosopher decides that the bean is demoniac, is possessed by an uneasy spirit which is trying to escape from the hard shell.

You find it difficult, in this scientific age, to imagine that three powerful minds would work in that way or would rely on such abstract arguments. When you hear about three philosophers concentrating on a jumping-bean and reaching three different conclusions, you think that they are foolish: since they cannot agree (you say), they prove that they have not explained anything; men would not act so. But human reason always has worked in just that way, on every kind of problem, throughout the ages. Our mind has seldom felt curious about what makes things move, but has always taken pride in its power to reason about motions.

Today the best-equipped reasoners are acting in the same way. All round the globe they are trying to find out "What makes a nation move spasmodically to war?" One school of thinkers has decided that men are magnetized by their desire for land; another school pronounces confidently that we are animated by a "pugnacious instinct"; and a third school preaches that an evil demon in our heart will continue to make us fight until it is transformed by religion. These three theories have nothing in common. They are as wildly at odds as the three essays about the jumping-bean. Yet they are arrogantly defended in the best and most recent books about war. And we do not hear the authors called foolish because they fail to agree. No, we see that the authors are respected for their learning and their logic.

All of our best modern reasoning about religion and education and social problems is as contradictory as the three arguments made by the philosophers in the parable. That statement is not caricature, not even exaggeration. It is literal fact. The person who has never realized the fact lives in a world of phantoms. He sees about him the reasonings of mighty intellects, and he takes it for granted that they must be respected. He

supposes that reason is a divine gift and that every bookful of it should be revered, even if it fails to agree with all the other bookfuls. An angel who examined these products of reason would see that they cannot amount to anything so long as each disputes all the rest. Even a man can see that the three essays about the bean are worthless because they destroy each other. So it would seem that a man might easily pass the same judgment on conflicting arguments about war and religion. But he doesn't. He pays homage to each theory.

The cause of our homage seems to be this: each man is proud of his own powers of reasoning; he is proud that he can follow other men's reasoning; he enjoys the feeling that he can tell where the different arguments go wrong and where they are right; so he spurns the ones that seem wrong, accepts the one that his mind approves, and joins the crowd which is shouting in favor of it. He enjoys thinking and shouting. He is not curious about the facts. He could not bear to degrade his mind by admitting that the conflict of theories proves the lack of knowledge. He would feel humiliated if he had to inquire about the probability that all the theories are absurd. His pride in his own reason impels him to select, and then to follow some one of the reasoners.

If the human race has always been driven in that way by the pride of its reason, then probably the race will forever continue to be so driven. Perhaps life is pleasanter for the man who follows his pride and goes to battle for the theory that suits his mind. It may be that, since our nature is simian, we are better off when we enlist with some army of thought and fight against enemy thinkers. The following chapters are not propaganda in favor of intellectual pacifism. Nor do they plead for a skepticism which never makes up its mind and always remains coldly cynical. There is no spirit of reform in

this book. The mind is what it is. It will never be transformed.

The effort of this book is to make an exhibit of the pride of abstract reason—the pride which flaunts itself from every shelf of a library, which parades itself in every discussion of current questions, which is plainly seen to be ridiculous when we look back at its antics of thirty centuries ago or thirty years ago, but which seems dignified and even awesome in the present. When a man has learned to see that the cavortings of reason are now just as laughable as they have ever been in the past, his mind feels a zest that is unknown to those who hack at foes in intellectual contests. This book is written to advertise the happier kind of mental life.

The untaught simian mind is perpetually embroiled in the quarrels of reason. The mind that has discovered the nature of those quarrels can be better occupied. It knows that there is no knowledge so long as opposite sides can be defended by numerous and skilful thinkers. It knows that to take sides is folly. It waits, curious and cheerful, for the unfolding of evidence. What tribe of theologians knows more than all the other tribes? What school of pedagogical experts can prove that the other schools are upholding nonsense? Every rational being is confronted by such queries at every turn of his road of life. If he realizes that they are not answerable so long as each solution is disputed, he will be a free gentleman in a frenzied world. If he keeps his mind open for new evidence, if he learns the pleasure of *curiosity,* he can rescue himself from mental brawls.

This book will describe some of the most common ways in which practical people are worried by the delusions of pompous thinkers. The emphasis will be on those practical concerns of ordinary people who are distressed by the tumults and alarms of reason. For this

twentieth century is tortured by a multitude of superstitions that are just as gross as medieval beliefs. There is need of light and ventilation for the stuffy chambers of our mental house. Nearly all of us are haunted by some kind of mystic terror—some ghostly idea about social reform or education or religion. The windows of some minds can be opened, so that the spooks will fly away.

If a man is interested in the way beans move, he ought to buy a bag of them, pour them into a dish, select the liveliest one, and cut it open. Inside he will find a small larva that is wriggling vigorously. In every other active bean he will find a similar larva. He can prove by a few observations that the motion is always caused by the activity of one of these little caterpillars. If he cares to study the animals, he can learn every detail of how the mother moth deposits her egg, what the life of the larva is, and how it develops into another moth that lays its eggs on other bean-plants.

A naturalist who acquired such knowledge, if he had a small and unimaginative mind, would scorn the philosophers. He would say that he had "explained" a mystery and that there was nothing in a jumping-bean but a mechanism. But if he had an open and curious mind, he would not scorn any theorizer. He would realize that he had advanced only one step into the mystery, and had explained nothing. For what can any man know about the instinct that leads a moth to deposit an egg on just such a plant in just such a way? Who has understood the beginning of the marvel of an egg? Within it must lie, in some potential form, the instinct of a mother. The lifeless protoplasm of the egg contains something akin to mind. We cannot fix any boundary between the "matter" of an egg and the "spirit" that shows itself in an exact and delicate instinct.

So we can see that a scientific explanation does not get very far. We are not inclined to go to war against superstition or against materialism. While we are glad to discover caterpillars, we see beyond them an endless vista of facts that defy research. Though we may suspect that demons are a vulgar and feeble fancy, we like to think of the romantic possibility that they represent a truth which is hidden from mechanistic minds. We are open to all surmises. We care only to learn what the universe is like, and we understand that the brains of a million reasoners cannot change the truth a particle. For the world is what it is. "What seems most probable?" we inquire. We do not trouble ourselves about any braggart claim to knowledge, but are glad to examine any new evidence. The wisdom of that policy is nothing new. It is guaranteed by all the history of mankind. Every record of a man who boastingly flourished a key to the universe is a record of delusion. But every great man who has faced the everlasting mystery with a tolerant curiosity shines in the annals of the race as an admirable character. This book will describe the oldest and best-tested, but frequently overlooked, truth that human beings have learned.

CHAPTER II

Reason Worships Its Own Imaginings

Reason dwells in a universe of which it knows nothing. Our telescopes and spectroscopes, which can explore for millions of trillions of miles, discover only suns and nebulas that forever swim through space. In all of them there is energy, which seems to be doing nothing but dissipate itself.

And when we explore some small particle of matter, such as a grain of sand, we find the same sort of aimless infinity. The particle is composed of molecules so small that two million of them will only stretch across its little diameter. They are hurtling into each other, at rifle-ball speed, thousands of millions of times every second. Each one is composed of atoms. Each atom is a structure so complex, so swirling with the unimaginable swiftness of the motions of its electrons, that it defies investigation. Such is the activity in every particle of matter throughout the millions of galaxies of suns that the telescopes discover. It appears that every motion in the universe, whether of molecules or of soaring nebulas, is in accord with fixed, mechanical laws.

Midway in the scale of size between the ineffably small electrons and the inconceivably large galaxies of stars swings an iron pellet, covered with a coat of rock and water, which we call the earth. We creep along its surface. A few miles beneath our feet is a heat that would convert us instantly to a cinder if we came in contact with it. A few miles above our heads is the absolute zero of empty space, which would congeal us if the blanket of air were removed for a second. This thin shell between the cold and the heat is the home of reason.

If a man sends his mind roaming from this protected surface of a pellet to the outermost galaxies and the inmost electrons, he sees that his proud ego is a spark of emotion which flickers for an instant in the illimitable sea of mystery. So it would be no wonder if he should be full of fear when he thought of the universe; for he seems to be nothing but a wisp of feeling in an infinite chaos of whirling matter and meaningless force.

But only an occasional man, at certain short intervals of his life, has paid much attention to the overpowering immensity in which he lives. His interest has always been absorbed in something that seems to him far more important—the creations of his mind. He knows nothing about this mind, for there is no way in which he can investigate it. If he tries to observe his own mind with his mind, he is like a mirror trying to see its own image. But man has never been much troubled by this ignorance of what his mind is. He takes the mind for granted. He assumes that it is a reliable instrument—even a splendid one; and he is proud of the way it works. It reasons. It goes forth boldly between the universe of atoms and the universe of stars; it measures and passes judgment; it is very much pleased with itself. And we cannot blame the mind for being proud. It has accurately weighed an electron whose diameter is only the tenth part of the millionth part of a millionth part of an inch; it has deciphered the history of a billion years from the faint and jumbled hieroglyphics in the rocks; and it is now discovering the boundary of total space. This seems a prodigious, a supernal, skill.

Yet the mind has not spent much of its career in this praiseworthy kind of enterprise. For several hundreds of thousands of years it has been mainly busied, not in exploring the universe about it, but in imagining a universe. Human reason's principal occupation has always

been to create a population for the heavens above and the earth beneath, to imagine what the forces of the world are, to invent explanations of what happens on the earth, to think out causes and effects, to paint all manner of mental pictures of man's environment.

Reason, for example, has never cared about keeping a record of rain and sunshine, so as to see what causes crops to vary. No, it has preferred to imagine a person in the sky who sends much wheat when he is pleased and a blight when he is angry. The mind has pictured this spirit so vividly that the fancy is far more real than a stack of sheaves. The personality of the Grain God is reasoned out in detail, his moods all described, the causes of his anger diagramed by the gravest intellects. Reason has forever considered that the study of seasons and soil-conditions is degrading materialism, but that the expounding of divinity is noble work.

The record of the phantoms devised by reason is so grotesque that it might well destroy any respect for the mind which created them and worshiped them. The leaders of nations, the best minds that culture could produce, have reasoned out bloodthirsty gods, filthy devils, the necessity of human sacrifice, everlasting torments of hell, monstrous creeds, bodily ghosts, spirits of trees and stones, mystic powers of woe to be controlled by magic formulas. The wildest effort that an erratic brain could make to invent ideas would not surpass what reverend religious leaders have soberly taught as eternal truth. Human history overflows with terrors seriously conceived and zealously reverenced by untold billions of people for several thousand generations. Our mission in life has been to feel afraid of what the best minds imagine.

Of course I am telling no news, for we all understand nowadays how superstitious our ancestors were. So

there is no need of another book to explain how baseless the superstitions were. But none of us can realize that in this twentieth century the world is still almost as superstitious as it ever was. That is the effort of this book—to show how we still reverence the fancies of our profound reasoning, how we believe as credulously as our primitive forbears did, how we put no trust in observing what is before our eyes, how we instinctively accept what the mind creates.

The world teems with these imaginings that reason manufactures and then bows down to. A fair example is The Cosmic Drama. In intellectual circles all over Christendom there are men who see—as plainly as they perceive the chimneys on a house—that mankind is an actor in a great play which is staged by an Omnipotent Power. Most of these men have abandoned what is ordinarily called religion; they are not referring to anything like a Christian heaven or the orthodox God. They see with some inner eye, so clearly that they cannot question the reality of it, a drama in which man's aspirations act a part, a drama that is directed by some Producer who controls the universe and regards man as the most important part of it.

If I say to one of these persons who have the vision, "I don't see anything with my consciousness," he is sorry for me. He feels that I lack a power of sight which operates in him and his fellows. But when I inquire of another intellectual person next day about The Cosmic Drama, he tells me that it is just a phantom in a minority of brains. After inquiring of a hundred men with fine minds I discover that only ten of them see the drama; the other ninety treat it as sheer fancy that does not correspond to any known reality.

By what standard can I judge whether the ninety men are mistaken?

From this greatest reach of the mind I may come down to a contracted little area of science and examine psychoanalysis. I read a book about it, written by an author who claims to be rigorously scientific and to have banished from his mind all imaginings that cannot be demonstrated in a laboratory. He tells me of an Œdipus complex. But when I take a census of the hundred good minds, I find that only eighty-five of them can see any reality in an Œdipus complex.

By what standard can the world judge whether the complex actually exists?

The most imposing mental structure in the academic world has been philosophy. If I questioned all the members of a university faculty, I should learn that ten of them had a firm faith in the reality of what philosophy declares to us, that forty more of them had a slight faith; and that four hundred and fifty were unable to see anything substantial. Perhaps the only sensible decision I can make in this case is that the chances for philosophical truth are as fifty to five hundred. But this leaves my mind uneasy. I don't understand how the ten instructors can be assured that they really see something if four hundred and fifty other instructors are powerless to see anything.

For nineteen centuries the western world has believed in "sin," and a large part of it still believes. But among the leading intellectuals only a minority now seem to believe. So there is a dilemma for us to face:

> Sin is a reality which some minds perceive.
> Sin is a myth which has no reality.

"Justice" seems a reality to a very large majority of thinking men, but it is so differently seen that the definitions of it have little in common. It is called correspondence with the will of God, or accordance with the human

conscience, or adjustment to the common customs of any given society. Hence I must suppose that some reasoners, when they tell me about justice, are only describing a mental image.

"Obedience to law" is seen by millions of educated Americans as the course of action which is necessary to the continuance of democracy. They expound what they see with faultless logic: "No state can exist unless its laws are obeyed; laws will not be obeyed if citizens are allowed to choose which laws they will disobey; therefore all laws on the statute-books must be uniformly enforced." But Emerson preached the opposite of this logic: "Whilst this law stands on the statute-books, *it must be disobeyed.*"* And millions of Americans see the case as Emerson put it. They do not perceive in Anglo-Saxon history any such principle as that "obedience to law is a necessity." They perceive that the English-speaking peoples have always chosen what laws they will obey and have built up their freedom by a principle of disobedience of obnoxious laws. I must therefore judge that one of these groups of arguers is looking at vacancy and is mistaking its own passion for a record of the facts of history.

In many religious books I learn that "experience" is what goes on in anybody's mind, but in many other books I learn that this is only one kind of experience, and not the kind that has been generally useful. There is no escaping the conclusion that one of these sets of authors is trusting to mere imagining.

Many writers look at "faith" and see a force that reveals reality. Many other writers see in faith a force which panders to desire. One party or the other must be the victim of a delusion created by reason.

* I am indebted to Corey Ford for this reference to the address at Concord, May 3, 1851.

Yet reason is never abashed by these dilemmas. You cannot persuade a philosopher or a theologian to consider the probability that his theory is only a vision. In all practical concerns of life he trusts absolutely to probability. He thinks it probable that the evolution theory is correct, but that it is not completely demonstrated. He thinks it probable that spirits do not assume material bodies in seances, but would be glad to hear more evidence. He rejects Buddhism and accepts relativity on the basis of probable truth—never supposing that he can have knowledge in cases where the majority opinion is against him. In most affairs he recognizes that mankind is prone to be deluded by the imaginings of reason. But in his own field—in the case of the particular theory or creed to which he is devoted—he turns his eyes away from the universal fact of human nature. He knows something indubitably, and is unmoved by the fact that nine-tenths of his mental peers think he is the victim of baseless reason.

Such is the human intellect. It stalks proudly through the universe of atoms and nebulas, guiding itself in most concerns by attending to probabilities, but incurious about the workings of reason. It erects for itself a stronghold of reason to shelter the idea which pleases it. There it bids defiance to all other phases of reason, to all probability, to all the facts that shine like suns before it.

CHAPTER III

Reason Is Passionate

Take flight for a few minutes to a lookout where you may see how passionate our mental operations are. Speed forward a million years into the future, fly out a few billion miles beyond our sun, and from this detached position look back and down at the human race, as an angel might who felt charity for us, but was not deceived about our powers. Now you can survey the history of what the brain has done. You can see it budding in reptiles, enlarging in early mammals, evolving in an ape-like ancestry, developing to its full force a thousand centuries ago. So far as the biologists and anthropologists can guess, it has not increased in ability since it learned how to make civilization. Of course it has vastly increased its stock of information, discovering as the millenniums went by how to make fire, to melt metals, to observe the stars, to count large numbers, to write its thoughts. These are immense advances. They make modern man, with all his machines, seem like a gigantic deity. But a scholar who can appreciate the achievements of primitive men considers that their intellectual feats were quite equal to our own. For example, Frazer testifies in his notable chapter on "Our Debt to the Savage":

> Our gratitude is due to the nameless and forgotten toilers whose patient thought and active exertions have largely made us what we are. . . . Our resemblances to the savage are still far more numerous than our differences from him; and what we have in common with him, and deliberately retain as true and useful, we owe to our savage forefathers.

Edward B. Tylor says in his *Primitive Culture:*

There is a direct and close connection between modern culture and the conditions of the rudest savage. There is an *unbroken* continuity of philosophic speculation from savage to cultured thought. The civilized metaphysician falls back on such primitive conceptions as still occupy the minds of the rude natives of Siberia and Guinea.

Paul Radin urges the fact upon his readers in the strongest terms:

It must be explicitly recognized that in temperament and in capacity for logical and symbolical thought there is no difference between civilized and primitive man.

When we are a million years away from the present time, we can see that our way of thinking today is the way our ancestors thought when they dwelt in the caves of France and Spain. The chief business of the brain has been to *reason out* the meaning of the world. Our philosophers today shrink, just as ancient men did, from a "naturalistic" account of the world; they gain esteem by explaining the world in terms of personality. No expert in pedagogy would be acclaimed for telling about ugly classroom facts; we honor him only for expounding to us a personality—"the social mind." We will not join an army for the sake of dirty facts, but only because of some spirit of democracy that is sacred. We are apathetic to the fact-finder; we are excited by the medicine-man who *reasons.* We stand in awe of reason.

Even that great observer who was the foe of mere reason, Charles Darwin, paid this tribute to it: "Of all the faculties of the human mind, it will, I presume, be admitted that Reason stands at the summit." What he meant by "reason" with a capital *R* was his own method of using his brain to detect possible explanations—a pro-

cess which we find in the lives of Galileo and Michelson and Einstein. This has been a highly creditable and useful way of employing the brain.

But a quite different process is also commonly described by the same word—the method of medicine-men and philosophers. They use logic more acutely than the Darwins can; their reasoning is more refined and powerful. But it has nothing in common with the Darwinian reasoning. And since the two opposite methods have the same name, the human race can continue an endless discussion as to whether "reason" is valuable or harmful.

A parallel case that illustrates this double meaning in a word is the verb *think*. Ask a hundred college graduates chosen at random to define the word, and ninety-eight per cent. of them will say something like this: "to exercise the understanding in an active way." The word has that meaning; hence we are urged by pedagogists that children must be taught to think clearly. We pride ourselves on our thinking. But few of us are able to use our minds in this strenuous way. Mortimer J. Adler, a professor in the University of Chicago, says, "Most human beings rarely think; and the thinking of the few who do is usually immersed in the mesh of hurried, practical affairs."

What, then, are those ninety-eight college graduates actually doing most of the time when they try to think? They are engaged in the operation which the *New English Dictionary* puts at the head of its list of definitions: "to have in the mind as a notion." When a man says, "I think that God prefers the democratic form of government," he has that idea in his brain; and such thinking is commonly considered worthless. Hence thinking may be the most praiseworthy or the most debasing occupation of the mind. All depends on what you mean by "thinking."

Prof. W. M. Wheeler, of Harvard, has explained the two types of thinking in his *Foibles of Insects and Men.* He is so sensible and witty a man that the entomologists count themselves lucky when they can listen to one of his addresses. "We are coming to see," he remarks, "that there are two very different types of thinking: one characteristic of a small portion of mankind, the scientists, *when functioning as such;* and one which is the only type indulged in by most humans and also by scientists when they are off duty. The latter has been called 'autistic.' Other writers have called this 'emotional,' 'irrational,' or 'wishful'; and recently Henshaw Ward has dubbed it 'thobbing.' " Maynard Shipley says that "intelligence is measurable by the ability to appreciate the distinction between 'thobbing' and thinking."

Walter Bagehot once described the usual kind of thinking thus: "If you can only get a middle-class Englishman to *think* whether there are snails in Sirius, he will soon have an opinion on it. It will be difficult to make him think; but if he does think, he cannot rest in a negative; he will come to some decision."

The word *reason* has a similar pair of opposite meanings. In one sense it refers to the supreme, and extremely rare, power of the mind that was exhibited by such men as Newton and Lyell and Darwin. But in the other and common sense it is that most pitiful misuse of the mind which has filled the world with scholastic verbosity. This common way of reasoning is to start with some word—such as *soul* or *justice* or *matter*—and to make statements about this word, and to build the statements into a logical structure, and then to assume that the structure is a real truth. For instance, I may write down the word *justice;* then I may write the statement, "The purpose of law is to insure justice to all citizens"; then, on this premise as a foundation, I may write a big book

about the nature of the law. My logic through every page may be perfect; I shall erect a fine castle of reason. But as soon as a rival logician shows that my definition of justice makes no sense, he can put his lever under my castle and topple it to ruin with one heave.

Two professors of law (Oliphant and Hewitt) have recently described this ordinary kind of reasoning in more extreme terms than I should dare to employ. They speak, not simply of legal argument, but of all kinds of argument that the reason has ever devised. They are referring to the use of logic in practical affairs.

When logic is so applied, the major premise is quite as likely to be the dogma of a medieval ghost still ruling us from the mists of antiquity. . . . This criticism applies to *all* arguments. So far as proof goes, every argument, in and of itself, begs the question it is set to solve.

If the truth of that sentence could be planted in every reasoner's mind tonight, so that he could wake in the morning with the full consciousness that every argument is only a duel between concealed premises, the intellectual world would be born again. Instead of filling the air with simian chatterings against opponents we should bring our prejudices out for an airing. Instead of intellectual warfare we should have mental health and happiness.

Aldous Huxley paints a lively picture of this brutish warfare of the reason in *Do What You Will:*

Most philosophical argument is the angry shouting at one another of two people who use the same words, but mean different things by them. It is hopeless and futile squabbling.

Probably ninety-nine and nine-tenths per cent. of all our mental activity that goes by the name of "reason"

is nothing but that sort of passionate squabbling. Let John Dewey bear witness:

The intellect is always inspired by some impulse. Even the most case-hardened scientific specialist, the most abstract philosopher, is moved by some passion.

Hume was one of the most influential reasoners who ever lived in England. He declared that "reason is the slave of passion." "If I must be a fool," he said, "as all those who reason certainly are, my follies shall at least be natural and agreeable." He was determined that his mind should not be belligerent, but should live in dignified peace.

"Our reason," said William James, "is quite satisfied, in nine hundred and ninety-nine cases out of every thousand of us, if it can find a few arguments that will do to recite in case our credulity is criticized by someone else."

Bertrand Russell closes a temperate chapter on education thus:

I conclude, therefore, that logic ought to be taught in schools with a view to teaching people *not* to reason. For, if they reason, they will almost certainly reason wrongly.

Of course it would be possible to fill a book with condemnations of a similar sort that have been made by men who are not professional reasoners—by financiers and mystics and orators and actors and all manner of people. Their prejudices are not worth recording. You will notice that I have quoted only from men whose business was to use their reason, whose lives were spent in teaching their fellows how to reason better. It is the verdicts of such thinkers that signify. Observe what various hard-headed churchmen have thought.

Archbishop Whately, who achieved fame by his work on logic, was not a whit behind Bertrand Russell in his condemnation of reason:

Reason can no more influence the will than the eyes which show a man his road can enable him to move from place to place, or than a ship provided with a compass can sail without a wind.

Another archbishop, Tillotson, corroborated Whately:

What men lack of reason for their opinion they usually make up in prejudice.

John Wesley, the astute founder of Methodism, said, without any cynicism:

Passion and prejudice govern the world—under the name of reason.

Dean Swift distinguished the abstract power of reason from the reason of any individual:

Reason itself is true and just, but the reason of every particular man is weak and wavering, perpetually swayed and turned by his interests, his passions, and his vices.

Martin Luther did not mince words:

Human reason is like a drunken man on horseback: set it up on one side, and it tumbles over on the other.

If we plunge from this clerical setting to our most modern essayists, we find the same judgment. J. W. Krutch voices it:

The laboratory has shown itself most competent when it has attempted to demonstrate how completely our reason is in bondage to our passions.

Millikan repeats it:

Indeed there is no question but that a large part of what we call reasoning is in fact simply the rearranging of prejudices.

Many scientists deny that they can think straighter than other people. For example, J. W. N. Sullivan, in *The Bases of Modern Science,* gives this indictment:

In their private lives scientific men are, for the most part, as prejudiced and slovenly in their thinking as are most other men.

D'Abro is a modern mathematician, whose *Evolution of Scientific Thought* is admired by his peers. He reveals causally on page 341 what most of us never heard about this most rigorous type of scientists—that their theories are somewhat determined by personal prejudice:

We need not be surprised to find the most competent authorities—such as Einstein, Weyl, Eddington, Silberstein, and Thirring—manifesting different tendencies according to their respective temperaments. . . . These divergencies of opinion arise from mere matters of sentiment, and it is important to note that they concern chiefly the loftiest superstructure of the theory.

Isaac Newton tried to prove that absolute space was involved in the nature of God, and he supposed that his reasoning about The Horned Beast in *Revelation* was as valid as his theory of gravitation. Kepler, one of the greatest of astronomical geniuses, believed that the planets made music and that this could be heard by the soul of the sun. As soon as his reason was freed from the check-up of calculations, it sprang to romancing.

It is difficult to realize that the minds of astronomers nowadays are just as prone to myths as the greatest

minds of the past. But we have seen that there is an unbroken continuity in reasoning from the savage stage of thought to Kepler's stage; we cannot find any break in the continuity from Kepler to Eddington.

Robert H. Lowie is a distinguished anthropologist of the University of California. In *Are We Civilized?* he thus estimates the reasoning power of most modern scientists:

> Scientists are led astray by tradition, by timidity, and by the unchecked play of fancy and emotions. . . . The body of knowledge will increase to gigantic bulk, but the individual scientist will go on spinning his cobwebs of fancy. . . . The scientist is still a primitive man in his psychology. . . . In the psychology of the scientific observer there has been no significant change since the Reindeer age.

Philosophers are just as frank as scientists in asserting that their passions direct their efforts to reason. E. A. Burtt is a philosopher at the University of Chicago who has written a book to teach undergraduates how to reason, *Principles and Problems of Right Thinking.* He wants students to understand that most philosophers have been driven by their emotions. So he describes for them, as an illustration of the general truth, the contrast between Spinoza and Hume—"who can be subordinated to no others in intellectual power." He shows that "the interests of the two men were of very different types," and that "these divergences of fundamental *interest* help to explain the radical differences of their conclusions."

John Dewey has written several passages that describe with plain brutality how philosophers always start with a prejudice and build a system to satisfy it. In *Experience and Nature* he says:

> Systems have always worked with loaded dice; their

premises have been framed to yield desired conclusions. . . . Philosophers deduce results in accordance with what is logically implied in their own choice of standard and measure. . . . Beliefs about God, nature, society, and man are precisely the things that men most cling to and most ardently fight for. It is easier to wean a miser from his hoard than a man from his deeper opinions.

It is seriously questioned by all varieties of rigorous thinkers whether logical thought can accomplish anything. F. C. S. Schiller, a tutor of Oxford, a noted writer on logic, goes so far as to say, "Logic has been just examinable nonsense for over two thousand years." Dampier-Whetham, a thorough and careful thinker, seems to kick the rational process out of doors in *A History of Science:*

Medieval Scholasticism worshiped the human reason acting within the bounds of authority; modern science accepts brute facts whether reasonable or not.

"Who knows," asks Prof. E. M. East, the Harvard geneticist, "but that reason is a less trustworthy master than instinct?"

Paul Elmer More has spent an arduous scholarly life. In his sixty-sixth year he italicized the principal truth he had learned about the ways of the intellect:

One of the hardest things for a student to learn, which yet, if he could but know it at the beginning, would save him from endless perplexities and perhaps from final despair, is just the simple fact that *brain-power is no guarantee for rightness of thinking.* A restlessly outreaching mind, unchecked by the humility of common sense, is more than likely to lead its owner into the bottomless pit of fatuity.

Gilbert Seldes drew the same moral from his study of

the antics of the American intellect during the nineteenth century:

Mesmerism is a good illustration of an almost universal law—namely, that education, and even the possession of intellect, form no bar to the ravages of superstition, provided it sounds scientific. . . . No quackery is ever rejected by the American public until a more scientific-sounding quackery is ready to take its place. . . . The belief in psychoanalysis marks the intellectual-cultish mind of today.

Seldes quotes the scathing passage from Hawthorne that might have taught us the dreadful truth for all time:

The influential classes, and those who take upon themselves to be leaders of the people, are fully liable to all the passionate error that has ever characterized the maddest mob. Clergymen, judges, statesmen—the wisest, calmest, holiest persons of their day—stood in the inner circle round about the gallows, loudest to applaud the work of blood, latest to confess themselves miserably deceived.

Henry Hazlitt, the literary editor of the *Nation,* wrote fifteen years ago a book called *Thinking as a Science.* He described the same superstitious love of quackery by "thinkers" (the quotation marks are his):

I am willing to wager that most of those same people now so dithyrambic in their praise of James, Bergson, Eucken, and Russell will twenty-five years hence be ashamed to mention those names, and will be devoting themselves to whatever happens to be the passing fadosophy of the moment.

An active intellect is seldom content to check its operations by the facts of life, but forever desires to soar aloft in the ether of its own imaginings. Santayana was cer-

tainly sympathetic with all efforts to philosophize and poetize, yet he saw how ludicrous they are:

The human mind naturally breathes its own atmosphere of myth and dialectic, and evidence of fact pierces this atmosphere with difficulty, only after much experience of error.

Well what of it? We may be content to let the intellectuals gull themselves generation after generation, and we may suppose that their doings are of no concern to us. As a matter of fact their doings powerfully effect our pocketbooks, our government, and our peace of mind. Theorizing educators, theorizing sociologists, theorizing religionists, theorizing economists, theorizing politicians—theorizers in every department of life are presenting their imposing arguments. They write with faultless logic and mighty power of reason. We naturally suppose that they are wise. But it is more than likely that they are only pompous fadosophists, and that their advice would lead to waste and folly.

Bertrand Russell may prove to be one of the intellectual quacks; but his warning against quackery may still be valid. Read it for what it is worth.

Education, the press, politics, religion—in a word, all the great forces in the world—are at present on the side of irrationality; they are in the hands of men who flatter King Demos in order to lead him astray. . . . Credulity is a greater evil in the present day than it ever was before, because, owing to the growth of education, it is much easier than it used to be to spread misinformation.

Think of the splendor of our war-credulity in 1917. Now we can look at it through the eyes of Delaisi and see what a limpsy rag our bright banner was:

President Wilson understood the necessity for a new myth and provided it with the necessary creed. . . . He knew that a myth could not just be manufactured, that it had to be an enlargement of familiar notions. . . . He based himself upon the democratic myth and launched the new creed about "making the world safe for democracy." The new watchword was enough to polarize every energy and rouse every enthusiasm.

Delaisi believes that our myth believing faculty extends through all our most practical concerns and distorts our view of matter-of-fact affairs. "The difficulties are not material, but psychological. . . . It is our mental outlook which is paralyzing our economic system." His book is entitled *Political Myths and Economic Realities.* Any reader who catches his idea can be more sane and peaceful in all his efforts to understand the uncanny working of the human intellect.

Delaisi is not an extremist. There are hundreds of university professors who consider that his view is obviously sensible. Prof. F. H. Giddings published in 1929, when he was seventy-four years old, a book called *The Mighty Medicine,* in which he tried to expose some of the myths that shroud reality from our leaders in war and legislation and education. This is the close of his fourth chapter:

From 1818 to 1925 more nonsense was talked and more insanity enacted into law than in all recorded history before.

If a person knows how frequently nonsense and mythology are flashed from high places upon a dazzled world, he can enjoy the spectacle undisturbed. But if he assumes that radiant reasoning must of course be sensible, he will feel that the world is a kaleidoscope of jangling

facts. When we see that reason is driven by the winds of passion, we are no longer in dread of the noisy hosts of reformers and theologians and philosophers. When we have learned that nothing is known to be true so long as competent reasoners dispute it, we are unterrified by the warring logicians. Our minds are serene.

CHAPTER IV

But Reason Can Verify Itself

I once saw an entertaining monkey in a cage, a macaque from Java. He liked to be admired by the crowd in front of him and had devised a clever program for gaining applause: first he would sit perfectly still and survey the crowd with a haughty air; then he would stand upright, chatter for attention, and pose a moment; when the crowd grew silent, he would suddenly leap up three times, kicking the floor each time as he came down stiff-legged. The people cheered and clapped their hands. Whereupon the monkey paraded majestically to and fro behind his bars, thumping them with his tail and looking mightily pleased with himself.

If we suppose that his brain worked somewhat the way ours does, we can imagine that his reasoning was of this order: "I am the center of things here. The world admires me. I am admired because I jump and thump. I seem to be admired more than anything else in the world. I must be the most important thing in the world. Therefore I am the principal actor in the universal monkey-play."

This reasoning is strictly logical; it deals with spiritual values; it dignifies and exalts the reasoner. These are the qualities that we approve most highly in our own literature. What is more, the monkey's reasoning is impregnable; it cannot be overthrown by any argument. The monkey has thought deeply, has painted a mental picture that stands out vividly, and he will forever remain convinced that the picture represents a reality. If you could gain access to his brain with your human thoughts, if you could convey meanings to him with

human words, and if you should spend a year in trying to teach him the difference between his mental creation and a photograph, you would labor in vain. The picture that he has formed will always represent reality to him. It is a product of his reason and cannot be destroyed.

Now compare this kind of reasoning with the mental activity of a gorilla, who is a more intellectual creature. Suppose that he has seen a banana thrust into a four-inch iron pipe, twelve feet long. He is hungry, and he longs for fruit. His reason tells him that a banana will respond if it hears imploring sounds; so he addresses it with piteous appeals spoken into the end of the pipe. But the banana does not move. Then reason paints a picture of fruit being frightened by a fierce gorilla who drums on his chest; so he stands midway of the pipe and drums terrifically. But the banana does not budge. He grows hungrier. He spurs his reason to other logical devices. But the banana is obdurate.

At length he grows too angry to reason further. An unreasoning desire for revenge seizes him. In a rage, without realizing what he is about, without calculating any result, he grabs the long stick and imitates the motion that he saw the man make when the banana was stowed out of reach. He is clumsy, holding the stick at an angle with the pipe, instead of ramming it in straight. But he jabs hard with it and persists. The stick enters farther, is directed by the side of the pipe, reaches the center, pushes the banana out at the farther end. The astonished gorilla sees the food tumble out on the grass. He rushes at it and devours it.

Next day his keeper again pushes a banana into the center of the pipe. Again the gorilla exercises his reason, praying and menacing and doing logical incantations. There is no result. Then memory reminds him of how the unwilling food responded to prodding. Once more

he shoves the rammer into one end of the pipe, and once more secures the fruit. After a week he learns to omit the magic rites, learns to push the stick in straight, and thereafter he can secure bananas as fast as the keeper can deposit them.

When a psychologist records this experiment, he says that the gorilla is more intelligent than a macaque, because the macaque is not able to observe what the keeper did with the rammer and is not able to imitate the motion. For the same reason the psychologist judges that a chimpanzee is more intelligent than a gorilla. A chimpanzee can observe how a box, put on top of another box, enables him to climb to a banana that hangs out of reach; and later he can teach himself how to pile on a third box, and even a fourth. But such observation and inference is beyond the gorilla's power.

We give an animal credit for intelligence in proportion as it can notice *how things are* in the world about it. A puppy is not considered intelligent because of his fancies about his tail or some moving shadows or a noisy piece of paper; we say that he has mental power if he can recognize the sounds of his name, if he can observe that his master is preparing to leave the house, if he can learn what actions of a puppy are disapproved. If he can notice these facts in the world about him, we say that he is bright, that he is almost human.

We judge a savage in the same way. If we find him reverencing fire because it can scare away evil spirits, we may enjoy his poetry and philosophy and logic—in short, his reasoning about fire. But the lower a savage is in the scale of intelligence, the more poetical and logical will his reasoning be. What lifts him in the scale is the power to observe those actions of fire that are different from what reason or logic could ever predict—how fire acts on food or clay or metal, how fire can be used,

how the life of man can be made more pleasant by adapting fire to his needs. Somehow the theological reasoning of primitive people does not gain our esteem, because we know how inescapably easy it is for the human mind to breed these fancies. What we admire is the skill that can observe a fact and turn that fact to advantage.

When we take stock of the doings of our own civilized brains, we sometimes consider that the imaginings and reasonings are its most glorious products. There is much to be said for this standard of judging, but it seems not to be applied to the products of lower minds. They are rated high in proportion as they correspond to the facts of the world *and can be verified* by checking them against all men's experience. Our own mental operations are often rated in the same way. For example, a mind can create, in sleep, a new world of thought, where a rainbow is a door-knocker on the little finger of a deity. The dream is so much a reality that it remains more memorable than the commonplaces of waking hours. It seems a marvel of creative power. And if a man found that his fellows reverenced the vision, if he had enough support from them, he could easily be led to pride himself on having a soul that was superior to its material surroundings. But usually a man gets no corroboration. He is forced to laugh at the mental vagaries. In general, a man gains no lasting fame for intellectual power unless he does something that corresponds with the chimpanzee's feat of putting a fourth box on top of a pile of three boxes.

These two operations of the brain—creating and observing—are recorded for our inspection in sixty centuries of human history. We can see the products of creating: gods, devils, philosophies, theologies, abstractions, slogans, assumptions, magic formulas. We can see the products of observing—all our machines and arts and science. As we look down the parallel columns, we blush

at the creations and take pride in the observations. Yet in every age people have worshiped the creations of that age and have thought meanly of its observations. So the chances are ten thousand to one that our present estimate of our mental works is similar to the estimates that all previous generations made of themselves: we are doubtless prizing vapid imaginings and turning up our noses at true achievements.

Look at a few samples of parallel items during the last twenty thousand years:

Logical Philosophy	Noticing Facts
	I
Disease is caused by sin.	Disease is caused by little plants and animals that are propagated according to strict laws of heredity.
	II
Numbers have magical powers; they rule the heavenly bodies and determine human fate.	Numbers can be shown by relative positions; thus a decimal system was devised; mathematics was born.
	III
The lights that we see in the sky are personalities which are busy with determining human destiny.	All the motions of the stars *could* be accounted for by supposing that the earth revolves around the sun.
	IV
Fossils were made by Satan to deceive men and cause them to lose their souls by reasoning irreligiously.	Fossils are remnants of ancient life; by careful study of them we can read the history of the earth.
	V
Knowledge is that which seems best to my own mind.	The only clue to knowledge is the agreement of all competent observers.

The items in the left-hand column are logical and were arrived at by a strict process of reasoning, yet they form a ridiculous list. The items in the right-hand column, on the contrary, make us proud of the human mind. Though they seemed freakish and illogical when they were first thought of, they have been found to correspond with all the rest that all men can learn about the universe.

It may be that the term "reason" applies to one column as much as to the other. To debate about the classification is to waste time. What gives understanding is to examine the two ways in which the mind works.

We shall do well to begin by fastening our attention on the kind of reasoning that primitive people did when they originated what we, in our arrogance, are pleased to call their superstitions. So far as anthropologists can discover, these beliefs have always been arrived at logically. We know, also, that the most acute intellects in Christendom could defend faith in witchcraft, astrology, and all kindred beliefs by unassailable logic. There has never been under the whole heaven in any age any dogma that was not guaranteed by the ablest intellects. What seem to us in retrospect the grossest superstitions were always, so long as they flourished, upheld by reason.

Reason has always gone astray when it has failed to distinguish between that which comes from itself and that which is outside of itself. And it is small wonder that reason fails to distinguish. For example, if a man wakens suddenly at night and sees his uncle float through the room and vanish out of the window, and if next morning he learns that the uncle died just at that time, he would be unusually skeptical if he could doubt what his eyes had seen and what his reason imperatively concludes. Centuries of training in verification have not yet enabled the human race to be so skeptical; some

psychical researchers have not yet detected the fallacy of seeing ghosts.

Or take a case of scientific reasoning: a man's father wrote a scrawly hand of a peculiar sort; when the man is thirty years old he finds that his handwriting closely resembles the father's; he therefore infers that he has inherited the handwriting. Study of the subject in all the universities of the world for two generations indicates that such inheritance may be only a logical fiction; the logic may not correspond to the reality that is in germ-cells. Truly it is not remarkable that, amidst such an overwhelming chaos of illogical mystery as surrounds our lives, we should be unable to detect the difference between logic and fact. Even the most rigorous scientist of today must be unable to distinguish, along the boundaries of his knowledge, between figments of his reason and the actual phenomena of nature.

All that we can hope to do is to be on our guard and *to make the effort* to find the difference between logic and reality. An illustration that is prominent nowadays is the way mathematicians behaved when Michelson announced that his interferometer showed no motion of the earth. There seemed no doubt of the accuracy of the observation. But it turned all previous notions of time and space topsy-turvy. An explanation was needed to hook the observation up with previous knowledge. A Dublin professor suggested that perhaps pieces of moving matter were shortened in the direction of their motion. Now this was the sheerest guess. The professor knew perfectly well that it was a guess. All his fellow mathematicians recognized that it was a guess. They understood that this logical assumption made by reason might not be a reality of the world outside us. They knew that no amount of computation and deducing could ever determine whether the

guess was a phantom or a reality. Accordingly they sought for some experiment that would be a check on their reasoning. When Einstein had completed his computations and announced a theory of Relativity, he did not suppose that even his severe logic proved anything. No, he said that he would throw the result of logic into the ash-can if it could not be verified by some strict experiments which could be duplicated by all competent observers.

The key to all scientific reasoning is verification. An astronomer, for instance, may send his imagination on the wildest flights. He may guess that faint nebulas are immense systems of suns like our galaxy, or he may imagine the condition of an atom at the center of a sun, or he may conjecture that a ray of light can run around the universe and return to its starting-point. There is no limit to the extremes of speculation in which he may indulge. If he should ever mistake a speculation for a fact, he would lose caste. The only right attitude for a sane man is to realize that a guess is only a guess, to remain curious about it, to suspect that it is wrong, to care more about proving it wrong than proving it right. His only desire must be to verify it.

A simple illustration of verifying a theory is Pasteur's work with yeast. He was trying to find out what caused the wrong kind of fermentation in breweries. After much examination of good beer and spoiled beer he made a bold guess: that all fermentation is caused by the growth of microscopic plants; that these plants are of different species; that they propagate as truly to their type as oak trees and pine trees do; that if a certain species of yeast-plant grew in a vat (and only that species), it would produce good beer; but that if a certain other species developed in the vat, the beer would be spoiled. The theory was of no use in industry until it could be

verified. First Pasteur investigated drops of good beer under his microscope, and found that the yeast organisms were all spherical. Next he found that in spoiled beer there were always some spindle-shaped organisms. Then he found that, by careful breeding of the spherical yeast and excluding all spindle-shaped yeast, he could produce good beer—time after time without fail. Another set of experiments showed that good beer could always be spoiled by introducing some of the spindle-shaped yeast. Pasteur felt sure that he had proved his theory.

But is was not yet verified. The last and by far the most important step had still to be taken—that is, many other investigators must see whether they could duplicate the experiments, and then many breweries must find out whether they could always succeed by following Pasteur's method. Verification is a severe process. It is never complete *until all qualified observers agree.*

Now we see the difference between the savage way of believing and the civilized way of accepting a theory. The savage has just as good a brain as we have. If we make allowance for his small amount of information, we have to admit that his power to reason is just as great as ours. He relies on his reason. As soon as he has made a vivid mental picture of an explanation, the picture seems real. He does not distinguish between what he manufactures in his skull and what comes to his skull from the outside world. He does not understand *verifying* his explanations. Therefore his mind is tenanted by a host of opinions that seem to other tribes nothing but empty fancies.

Yet we flatter ourselves if we speak as though all of us, in all our mental operations, were different from savages. We saw in the previous chapter that even scientists, when they are not strictly engaged in their profession, are as careless about verifying as the rest of

us are. The only reason why we can detect the superstitions of bushmen is that we happen to have more knowledge than they have. We have learned some facts about diseases and weather and heredity. But suppose that some visitor from Mars, some being who had a thousand times as much knowledge as we, should encounter our mental outfit of assumptions and prejudices and creeds and theories of education or law or spiritual values. He would discover that we are essentially as superstitious as the Dahomans.

It may be that the human race must always remain superstitious, must forever continue to have its brain tenanted by spooks of the reason. Perhaps we are incapable of learning to distinguish between an educational hope and a classroom fact. Thus far in our history we have discovered only one clue to an escape from savage mentality—that is, to insist on *verifying* every idea before we accept it. Reason and emotion are not guides to reality in the material world. No one man's experiment proves anything. The unanimous belief of a sect of a million people does not prove anything. The only guarantee of the truth of any idea seems to be that it can be *verified* by all competent observers. The signs grow increasingly strong in the twentieth century that a person who submits his reason to this test is taking the only course that will keep him out of savage superstition.

CHAPTER V

Reason Can See the Folly of Unverified Reason

It is easy for us to see how ignorant a savage is, how his mind is full of imaginings that do not correspond to reality. He imagines, for example, that tuberculosis is a withering curse sent by a deity, that he can acquire an enemy's prowess by eating the enemy's heart, that the moon is being devoured when it is eclipsed. He is utterly convinced that these notions are true. You cannot present to him any explanations or arguments that will change his belief in the slightest degree.

So it is easy for the savage to see how ignorant a gorilla is. The gorilla knows nothing about deities or using fire or working magic. The gorilla is blind to all such higher wisdom. He probably thinks that the world is ape-like, and is utterly convinced that a gorilla's way *of conceiving the universe* is the only true way. He cannot step outside his own mind and criticize his thoughts. No effort to teach him the savage's thought will produce the slightest effect.

It must be easy for the gorilla to see how ignorant a crocodile is. The crocodile cannot roam through a forest, cannot express his thoughts by roaring, cannot terrify the world by drumming, cannot construct hammocks to sleep in. The gorilla knows that he could not enlighten a crocodile or alter its crude notions in the slightest degree.

Perhaps a crocodile may at times feel aware that a worm has hardly any intelligence. It would be impossible to communicate to a worm, busy in the slime, any conception of how meager its view of the world is compared with the wide-ranging knowledge of water and sun and air that the crocodile has.

As we have descended in the scale of intelligence, we have found that the brain is less and less able to conceive that its way of acting is not the whole way and the right way. Even the suggestion that a worm might criticize its own ideas is too ludicrous to mention seriously. If we now go back up the scale from this point to the level of the crocodile, we might imagine some faint glimmer of an ability to look above its own reptilian mind and wonder what a higher stage of ideas would be like; but the conception is no more than humorous. When we continue on up to the great height of mentality where a gorilla lives, we can suppose the mind has a slight power to examine its own working: for a gorilla can profit by lessons that a man gives. Far above this plane is the savage mind. This could—under stress of circumstances and by extreme effort—question its assumptions, and catch glimpses of what a civilized man is doing when he "verifies" a belief. If we encountered a Zulu who was making this effort, we should honor him as a prodigy of the intellectual life.

It would seem, therefore, that if you and I attempt to escape from our stereotyped notions, we are meriting applause from whatever intelligence is above our own. However feeble and mistaken our effort, it will be the kind of exertion that we should honor in any creature below us. The experiment is entertaining and exhilarating. Look about you and observe the setting of your utterly mysterious soul in an utterly mysterious universe.

You are seated in a brown chair. You have no doubt of what "brown" means, for you have always called the color by that name, your eyes report the color, all your friends' eyes report the same color. So you say that you know by direct perception that there is a chair under you and that it is brown. But it may be equally true to say that you do not even know that a chair exists.

Philosophers are all agreed that—if you go to the ultimate state of questioning your senses—you can never find any proof of the existence of a chair. All you know is that you—whatever "you" may be—have certain impressions; you do not know what correspondence there is between your impressions and a substance outside of you. For example, the physicist tells you that a chair is an aggregate of trillions of jostling molecules that are composed of inconceivably active and complex electrons. The "brown" color appears to result from the bombardment of waves or energy-particles on your retina. The friends whom you count on with such assurance are only some more impressions. How can you guarantee that there is any person or anything outside of your own consciousness?

This extreme of skepticism is a mental feat that amuses classes in philosophy. No skeptical reasoner ever lived by it or could conceive it. We shall have no more to do with it. But it is a good preliminary exercise to prepare for inquiring what the life of the mind is.

The keenest searching by all the best equipped brains of all the ages has not discovered what the mind is. The mind is still unable to step aside from itself and have a look at itself. A person who has never worried about philosophy always assumes that his mind is an ultimate fact, that the outside world is another fact, and that the outside world acts on his mind and makes true impressions there. No reasoner was ever so subtle as to get far away from this subconscious feeling. If we try to talk to each other without this assumption, we find that we are using empty symbols and cannot communicate anything.

But when we take the next step from sheer skepticism toward our ordinary way of thinking, we can be on firm ground and can talk common sense. We assume

that our mind is acted on by a world that is outside of it and distinct from it. We assume, moreover, that the changes produced in our mind correspond in some direct way to changes in the world. I may not know, for example, what this brick in my hand really is; I have no conception of what it is, and probably never can know much about its nature. It seems to be a collection of points of electricity—though I have not the least comprehension of what electricity is. Hence I quit all supposition that I have any acquaintance with the inner, the "true," nature of this lump of burnt clay and sand. But I assume that if I jab out a speck of it with an ice-pick, the difference which is apparent to my eye *corresponds* to some real difference in the brick. I assume that its color and weight correspond to some realities that are quite beyond my senses. We do not "know" anything about this correspondence, do not "believe" in it; but simply admit that the mind does not do any work until it assumes a correspondence. Since it is all the mind we have, we cannot require it to work in some celestial fashion.

What an enthralling experience it would be for some heavenly mind to watch our human mind groping its bewildered course amidst a chaos of impressions. Our mind feels the bombardment of electricity on its eyes; it feels the waves of air that come to its ears; it is aroused by molecules that fly to its nose; it is opposed by bulks of electricity that cause feet to stumble and hands to bleed. The mind is undaunted by this blizzard of perceptions. It classifies them. Its machinery records one perception as coming *after* another perception, and so it calls this procession of events a "time order." It invents the name "space" for another way in which events appear to it. Within itself it builds up an elaborate system for classifying what the senses communicate.

It constructs its own intricate world out of these assorted contributions from the surrounding universe. It creates thoughts.

Let us guess, for a convenient starting-point in our survey, that it was three hundred thousand years ago when the mind began to create thoughts. A hundred thousand years ago there was probably some race of men who had developed farther than the other races on the globe. Perhaps, as an illustration, they had discovered fire and had learned how to use it for roasting meat. Suppose that a traveler from this race visited a tribe that knew nothing about fire. He might retire to a secluded spot in the forest, seek a rubbing-stick and a chunk of dead wood, produce flame by friction, and return to the tribal cave with a glowing brand and an armful of dry twigs. Soon he would have a pile of wood blazing at the mouth of the cave, causing the tribe to feel fright and awe. They might regard him as divine and call him Son of the Lightning. He could win their admiration by cooking meat, could terrify them with his mastery of this supernatural bright spirit.

The traveler would then be able to see how rude and mistaken was the unverified thinking of this superstitious tribe. He could look down at their minds from his superior height, could look back on them from his advanced position. He would discover that the ignorant minds had no curiosity about the material facts of fire, but instinctively made up myths about it, had no interest in verifying the myths, and believed them irrevocably.

Fifty thousand years ago we may suppose that a similar traveler from the most progressive race of that day bore to a backward tribe the knowledge of planting wheat in the dark of the moon and of sacrificing a chosen youth to insure a good crop. The traveler would look down at the rude misconceptions of the tribe, would look

back at the great distance that separated their unverified reasoning from his own.

Twenty-five thousand years ago the most progressive tribe, having learned to make arrows and shoot them with a bow, would smile at the superstitious, unverified reasoning of an ignorant tribesman who thought that spirits shrieked a war-cry when the bow-string twanged.

Four thousand years ago there were astronomers who could calculate eclipses and who could therefore realize the feeble waywardness of that uninstructed reason which assumed that the sun and moon were people who acted in wanton and erratic ways. The astronomers could see that almost all minds in the world explained nature in terms of themselves, that the minds were not curious about checking up their explanations, but preferred to think, round and round in the old routine, with the old unverified notions.

Two centuries ago (only twenty years after the witchcraft persecution at Salem) Addison declared in a *Spectator* paper that, while he believed there was such a thing as witchcraft, he could not credit any particular instance of it. A few thousand venturesome minds in England agreed with him, and these few observers could see—back and down the vista of history—how incurious and fanciful and imprisoned the mind of man was, fiercely refusing to part with old ideas, passionately unwilling to verify them.

Seventy years ago an English naturalist proposed a theory about a possible way in which all animals may have developed from earlier and simpler forms. The few biologists who were ready to examine the evidence had sight of the frenzied pride of the intellect when it confronts an unflattering idea. Nearly the whole educated world derided the effort to verify an explanation of the varied species of living forms.

Fifteen years ago a small group of mathematicians suggested the likelihood that there is no evidence of absolute space, time or motion, but that all these elements are interrelated and are merely relative. The retort from a Cincinnati professor of physics in 1930 was: "Whitehead, Eddington, and Einstein have pictured a phantasmagoria instead of a world, as nonsensical as the hallucinations of a medieval monk driven mad by the fevers of asceticism." Thus he furnishes to the inquiring mathematicians the age-old proof that the human mind prefers a loud war-cry to an examination of new possibilities. For this physicist was not shouting about physics, but was defying a band of men who threatened to dissolve his mythology.

So we find that in every period it has been possible to look back at an earlier stage of mental growth and observe how the mind is enmeshed in illusions. To this extent we are able to guess how far the most open and curious mind is from any understanding of the world in which it finds itself. We can guess how dark and feeble our mind would appear to a visitor from some realm higher than ours. He would see that a few men grope for light, that some men wait for accident to thrust new ideas into their darkness, that most of them resent light and take up their clubs to slaughter anyone who points to it, or that they will accept it only if it is brought by a shaman with magical ceremonies.

How will a thinker of 2031 regard our mental status as he looks back and down at our thoughts of today? If he is tolerant and sympathetic, he will not laugh at our theories of education, democracy, etc. But we may be sure that he will laugh at our way of fighting for our theories. He may talk thus: "In 1931 people had had a generation of experience in verifying reason; they knew all about the necessity of verifying even the strictest

mathematical reasoning. Yet they were blind to the necessity of verifying all their other theories. Their theologians and sociologists held beliefs which were disapproved by the judgments of ninety per cent. of the competent observers of the period. The believers were completely superstitious."

It is likely that a heavenly visitor in 1931 would render the same verdict. I imagine that he would not make fun of our mind. Just as a discerning missionary admits that primitive man has much shrewdness and wisdom in the practical management of his society, so I think the visitor from above would grant that we are not altogether deluded in our use of reason. Of course we could never understand his verdict if he should put it into words for us, because his basis for judging would be foreign to ours. But he might tell us, very simply, of some items like these:

1. "You live under a tyranny of words. These are such clever devices and have been so useful that you are naturally proud of them. You cannot understand, therefore, how they make a mock of you. All your arguments are just acts of sweaty servitude to the words that are masters of your reason and that whip you into dungeons of your own making.

2. "You were created under the condition of having to fight for a living. Hence your primal needs—for food and shelter—had to be satisfied by the action of emotions. Your nature has been an evolution of egotistical passion. No wonder that your reason can hardly distinguish itself from passion.

3. "The center of all your life is your personality. So you must conceive the universe in terms of personality. Undeviating law is repugnant to your soul. You are not to blame for being mastered by this obsession of 'spirit' in the universe.

4. "The driving force of all your life is—no fault of yours—imperious desire that must be satisfied. Your reason is necessarily driven by the same force. What you desire must determine your reason.

5. "You were made to be proud, to believe in your ability to conquer. You are therefore the victim of overweening conceit and endless pugnacity. Hence your reason is proud and contentious.

6. "Since you live amidst the teeming thousands of false theories—barbarous vagaries of lustful minds—you have had to preserve yourselves against them. If your race invents a thousand theories, only one of them is true. You would be smothered in an ocean of falsities if you did not resolutely drain the streams of theory. Small wonder that you have not learned the art of searching for the occasional true theory—that is, the trick of submitting all notions to a test, the test of verification."

CHAPTER VI

What, Then, Is Knowledge?

"If a dandelion seed sprouts and grows, the plant will be a dandelion." That is a statement which hardly anyone disputes. The evidence for it is so obvious and so widely accepted that we say it is a fact. We say that it is knowledge.

"It is possible to make a machine which will run forever without receiving any power from outside itself." That is the theory of perpetual motion which scholars could not deny two hundred years ago and which many of them believed. Therefore it could be called knowledge. Even in the latest encyclopedia you will find an article on "Perpetual Motion." A postscript has been added to supplement the article written twenty years previously: "The foregoing article is devoted to a delusion which is still distressingly prevalent." The theory is now held by so few people that all physicists pronounce it a mistake. So we say that it is not knowledge.

How can the line be drawn between knowledge and delusion? The question sounds easy, but it has never been answered. We are told that a university is an institution for advancing knowledge, but no university has defined knowledge. Professors Einstein and Eddington, in their universities, teach relativity as knowledge; whereas Dean More (a professor of physics in the University of Cincinnati) says that their teaching is as nonsensical as the hallucinations of a mad monk. What, then, is knowledge?

An answer was given by Swift in *Gulliver's Travels,* when he described the noble horses, the Houyhnhnms,*

* Swift pronounced it "Whinnims."

of whom he says, "Their grand maxim is to cultivate reason and to be wholly governed by it." He explains how incredible it was to these horses ("who had no conception of what evil is in a rational creature") that men could consider reason to be problematical. The two following sentences are worth long pondering. (Gulliver is telling about the horse who was his master.)

I remember it was with extreme difficulty that I could bring my master to understand the meaning of the word "opinion," or how a point could be disputable; because reason taught us to affirm or deny only where we are certain, and beyond our knowledge we cannot do either. So that controversies, disputes, and positiveness in false or dubious propositions are evils unknown among the Houyhnhnms.

It appears, therefore, that these completely rational horses had a definition of knowledge; it was an indisputable certainty in the mind. This definition has stood the test for two centuries, and I have never heard any objection to it. It seems to be the standard definition still, for I read in the *Century:* "The state of being aware of fact.... Knowledge implies a consciousness of certainty."

A rational horse would never be able to imagine how men could misunderstand the definition. But we do misunderstand it and evade it every day we live. We think in this fashion: "I am aware of a fact—namely, that a medium conveyed to me a message which could have come only from my dead son; I am conscious of absolute certainty about this message. Therefore I have knowledge of the spirit world." For people who think they are reasoning when they talk so, the author of the dictionary definition added a caution which a noble horse would see is all-important—"consciousness of certainty does not constitute knowledge."

A mere man might be puzzled by the caution. "But," he would exclaim, "if there is a certainty in my mind, it must be knowledge." The horse would shiver with disdain and put its hoof on the significant word in Swift's first sentence—*disputable.* The horse would say that no rational creature can feel certainty about anything so long as it is disputable. The horse would point to the end of the *Century's* definition—"Consciousness of certainty may be associated with error."

Of course it may be. It is so associated by millions of would-be reasoners every hour. They are certain of the gospel according to Mrs. Eddy, of Eddington's direct experience of God, of the evil of private property, of the truth of psychoanalysis. On all hands men proclaim that they are conscious of certainty because some faith or some experience makes them certain. You suggest that their certainty is disputed by a majority of the university professors in Europe. They do not wince. Their assurance is not shaken one millimeter out of plumb. For they have no understanding of the life of reason as the horses conceived it. They suppose that an opinion may be knowledge.

Swift had difficulty in explaining to the horses the meaning of the word *opinion.* Unless we know what meaning he attached to it, we must lose the point of his story. The word has two senses that are almost opposite. The common one is this: "a feeling of probability, but without certainty." A man who has an opinion of this sort realizes that he does not know; he is open to further evidence. Such an opinion seemed rational to the noble horses when they judged that an explanation was probable, but might be wrong. A scientific hypothesis is of this nature. For example, Darwin, after twenty years of study, concluded that natural selection was a probable explanation of how the species of animals were produced;

he felt that the probability was strong, but he was anxious to hear evidence against his opinion. His theory is not yet completely proved, and perhaps never will be. Biologists would be glad to see it overturned if some simpler and more probable theory could take its place.

What appalled the horses was the other kind of opinion, which Dr. Johnson defined as "perswasion [sic] of the mind without proof," and that a modern dictionary explains in this way: "a definitely-held belief, practically identical with conviction." This is the meaning in the quotation from Dewey in Chapter III, where he uses "deeper opinions" as a synonym for *beliefs*. The horse could not conceive how one rational being could cherish a conviction which was disputed by another rational being. Disputability was the test. No belief was possible for a right-minded horse unless it seemed irresistibly true to all right-minded horses. Nothing could pass as knowledge in the land of the Houyhnhnms if it was not supported unanimously by all rational beings.

In our simian world things are very different. If I have a private conviction, and if I announce that I know it is true, all my polite friends are expected to admit that it is true. The only definition of knowledge which is generally current in the world is this: "Anything that happens between anybody's ears." If, for example, Sigmund Freud develops in his brain a theory of unconscious mentality, it is called knowledge. And if Wohlgemuth discovers in his brain that Freud's theory is mythopeic, his denial is called knowledge. If I invent an intelligence test and if my friend ridicules my test, each of us has contributed knowledge to the world. Mrs. Eddy creates, in her mind, knowledge of disease; and the doctor who disputes her has made some more knowledge. One school of theologians concludes that we know God by way of the senses; another school affirms that we know

Him only by intuition; both schools are credited with adding to the total stock of knowledge. If one scientist says that all science is based on faith, and if another says that science has no foundation in faith, each scientist has concocted knowledge between his ears.

The literal truth of what I say was shockingly revealed to me once by a friend who expressed a conviction in a magazine article, and commented thus:

> I have no final physical proof for this assertion. I merely know it to be true. I merely *feel* it to be true; my whole organism from the bone-marrow outward feels it to be true.

This man had opened his essay with the statement that he was a skeptic, and that he considered all questions open questions; yet his conclusion was that his private, internal feeling was knowledge.

How feeble and shrill this cry of "I know it to be true" sounds when we have heard the deep, calm tone of Hippocrates: "To believe one knows is ignorance." The noble horses would have understood that. They would have approved the poets to whom Henry Adams refers: "All these great geniuses affirmed that no man had ever been known to attain knowledge; but that a very few men were believed to have attained ignorance, which was in result the same."

The ability to perceive that we are ignorant has never been popular. Most men, through all time, have loudly professed their knowledge. And even the modern dictionaries concede that all manner of random thinkings are knowledge. If you will spend a few minutes turning through the *Century,* you will find that each of the following systems of thought is called either knowledge or science (and science is defined as organized knowledge): sociology, theosophy, politics, theology, history, peda-

gogy, ethics, philosophy, metaphysics. Truly it seems to me that this rigorous work of reference includes under knowledge all the logical processes that can go on between all men's ears. No one needs to be ignorant, for by some well-accredited kind of thinking he can contrive to reach what passes for knowledge, and so can rest in certainty.

In fact the thinking is hardly necessary. We usually let someone else do the reasoning and then accept his result as our firm belief. Dr. Walter A. Wells has expressed this truth in *The Common Head Cold:*

> Pliny, one of the most learned of the ancients, announced with finality and conviction: "I find that a cold is checked by anyone who will kiss the nostrils of a mule." I am sure, if he could make the same announcement today and get sufficient publicity, that he would at once have faithful followers.

If you suspect that Dr. Wells exaggerates or is sarcastic, you have no conception of the readiness with which mankind accepts any belief—whether about colds or hell or immortality—that is paraded with sufficient authority. We have no training in telling the difference between a superstition, an opinion, and a piece of knowledge. We have never decided what knowledge is.

A funny exhibit of our heedlessness is to be seen in the latest edition of the *Britannica,* which contains a new article, seventeen pages long, on a subject not treated in previous editions—"Knowledge." It begins with a definition: "That branch of philosophy which investigates the nature of knowledge, with a view to determine the conditions of its possibility." It gives, as a sample of the long struggle that men have had with the subject, the case of Hume: "He has done all that it is possible to do from the empirical point of view; and in the end he was constrained to confess that the attempt had been

unsuccessful." The final section of the article deals with the meaning of truth—"a difficult question, about which great difference of opinion prevails."

So it is hopeless to expect any understanding of the general nature of knowledge for another century or two. Indeed we shall probably never attain it, for John Dewey tells us that "A problem of knowledge *in general* is, to speak brutally, nonsense."

All that you and I and the modern philosophers can do is to inquire how, as plain matter of fact, the human race does behave itself when it confronts any particular problem of knowledge. We may start with Pliny's cure for a cold. Suppose that I propose this remedy to my family physician. He wonders if I have gone crazy. If I ask a rabbi about it, he tells me that the cure was a Roman superstition. A school-teacher will ask what comic strip I have been reading, and a pupil will only stare at me. Nobody will spend a minute to examine the evidence. Everybody is convinced in advance that the most famous natural scientist in the Roman Empire was wrong about kissing a mule's nose. The recipe was knowledge two thousand years ago; why does everybody now judge instantly that it is not knowledge? The question is a hundred times harder than it seems.

So far as I can tell, the physician rejects Pliny's theory because nobody in the medical profession nowadays will accept it. He cannot say that his experience is against it, because he has never tried it—and he never will deign to try it. Nor can he say that his germ-theory of disease will prove Pliny's theory wrong; for the medical profession is still ignorant of the specific cause of colds, and it is conceivable that some antitoxic effect could emanate from a mule's nostril. Suppose you could show by gathering statistics for five years that a mule never has a cold. Mightn't that fact indicate some cause

of immunity in the animal, a cause which might be transmitted to a man afflicted with a cold? No, the physician does not rely on experience or logic. He knows that any doctor's experience is too limited to warrant such a sweeping judgment, and he knows even more certainly that logic cannot account for all the unexpected facts of physiology. He seems to decide against Pliny's cure because—seeing in a moment all the reasons for skepticism—he feels certain that the muline theory can never gain acceptance.

Compare this case with one at the other extreme of medical opinion—the storm of angry protest that was vented against Oliver Wendell Holmes in 1845 when he argued that the fever which attacked women in childbirth was infectious and was carried from one woman to another by midwives. The eminent professors of medicine who railed at Holmes did, to be sure, go through the motions of appealing to logic and experience; but their reasoning was so flimsy that it could not have had a strong effect in forming their opinion. Their emotions were roused; they were scandalized; they were not calmly skeptical, but hot with wrath. They felt certain that the profession would never accept the theory. As soon as Semmelweis corroborated Holmes, and then other experts in obstetrics corroborated Semmelweis—just as soon as the theory of infection had gained some adherents—the doctors opened their minds.

Consider a very different kind of case in another field. Suppose that the doctrine of theosophy is proposed to a Methodist minister. He does not ask for the evidence; he knows that he could never refute the logic and intuition of Annie Besant and Colonel Olcott; he has no experience of this religion, and does not pretend to have. Yet his mind is firmly set against it. Why? The only reason I can see is that he knows that the great body of

scientists and theologians and philosophers—all men in the world whose judgment he respects—have decided against theosophy. He has not the time, even if he had the patience, to plough through the arguments. Perhaps he would confess that he had not the skill to separate the truths from the fallacies in all the evidence. So he does what we all have to do in similar cases—he accepts the adverse verdict of the world about him.

Ask an Adventist about Shintoism. He has not examined the evidence, yet he is not agnostic. He has decided against Shintoism. Why? Because his world of Christian reasoning decided for him long ago.

Ask a Christian Scientist about astrology. He does not even know what the twelve houses are, does not know that Kepler and Newton took astrology rather seriously, does not know that astrology is regarded as knowledge by some brokers on Wall Street and commands a high price there. No, he has decided against astrology because all the authority he knows has decided against it.

Spiritualism is indubitable knowledge to tens of thousands of intelligent people, yet it is rejected as trash by a Fundamentalist who believes in spirits. The Fundamentalist has not reviewed the evidence in favor of this creed. He rejects it for the same reason that I reject it—because all the people whose opinion he respects are very dubious. Perhaps he has, like me, attended a seance and talked with spiritualist friends and read a book on the subject, but he does not pretend that he could succeed in a public debate against Sir Oliver Lodge. Debate is too unreliable a way of forming safe judgments. We depend on the mass opinion of that portion of the world with which we are best acquainted.

There is no other recourse for a rational being. We lack leisure and ability to weigh the pros and cons of the hundreds of disputed opinions that swirl about us.

The schoolboy could never advance in his education if he tried to examine both sides of all the controversies he encounters in books and classrooms. His business is to accept what is taught—that is, the standard opinion of his society. The college student can do only a little better than this. Even the professional scholar can do no more than to form a judgment on a few questions in his particular field; for most other questions he must accept the preponderant thought of his place and his age.

If we should make a list of opinions and arrange them in order of probable truth, we should have an index to what knowledge is. The following five opinions are samples of beliefs that have at some time been unanimously accepted by the world as guaranteed knowledge.

1. The sun moves around the earth.
2. There are witches in the world.
3. Water can be found by the bending of a forked twig.
4. The northern part of the United States was once covered by an ice-sheet.
5. The heart pumps the blood through the body.

Select a jury of a hundred capable college seniors and ask them to vote on the items, saying yes if they consider it knowledge and making no mark if they think it is not knowledge. The result would be about like this:

1. Blank
2. 1 yes
3. 20 yes
4. 95 yes
5. 100 yes

The votes could not be made on the basis of logic or examination of evidence. For example, the proof that the earth goes round the sun is abstruse and depends upon very refined measurements which most members of the class never heard of. The proof of witchcraft

was compelling to the most acute minds in the world only three hundred years ago; it was cogently set forth in a scholarly book only three years ago; and no college student is competent to refute it. Harvey's demonstration of the heart's pumping the blood was not convincing to many anatomists who knew a thousand times as much about the structure of the body as is known by the average undergraduate today. The jury of a hundred could not, even after special study, pass intelligently on the arguments for and against the five theories. They have to rely—as we all do—on the consensus of opinion in our age.

We get light on what knowledge is if we study the vote on item 4, about the ice-sheet. Five students voted no because they had never heard of such a thing and supposed it was a joke or a trick. Now call in a geologist and have him present the proof—grooved rocks, gravel hills, balanced boulders, etc. These facts were all known to Lyell, the shrewdest geologist who ever lived; yet they did not persuade him. A careful thinker in a senior class could not trust himself to weigh the geologist's evidence and give a verdict. He is persuaded for a very different reason—namely: "This evidence has been sifted by all the geologists of the world; Professor Rockbottom is telling us *what all geologists now believe.* I trust their opinion."

More light can be had if we question the class about the water-witch item. We shall find that many of them know of practical, skeptical men who have learned by experience that water is found by a bending crotch in the hands of the right person. If you read to them the argument which the United States Geological Survey once issued to explain why no credit can be given to water-witches, you may convert five who voted yes and may shake the faith of others; but some will not be per-

suaded. The reason is plain: many sensible men believe in the water-witch.

Test the students by quoting from a dictionary: "This method of searching for water has been in use for centuries, but its efficacy is now rarely credited by intelligent persons." Students will see that the dictionary appeals to that ultimate reason for considering any opinion to be knowledge: What proportion of reliable people believe it? You may tell them that the quotation is forty years old and must be more true now than when it was written; but you will not budge them, because they know that many intelligent persons of their acquaintance do still believe in the water-witch.

This criterion of what knowledge is—that it is a balance of opinion—is homely and denies the power of the intellect. Hence we flinch from it and are suspicious of it. But it seems so plain a truth to many good reasoners that no one can afford to deny it until he has fully examined it with curiosity and without prejudice. I offer a few examples of the shrewd minds that have accepted the criterion.

1. Copernicus and Darwin and Einstein did not suppose that their logic—however flawless it seemed to them—could establish their theories. To them it was an axiom that they could not know they were right until they had gained the approval of some competent critics, and so could feel that in time all competent scientists would agree. Darwin often expressed the fear that he might be carried away by a fancy; he knew that his private

worth of his vast labors, had this conception of truth:

The grand, and indeed only, character of truth is its capability of enduring the test of universal experience, and coming unchanged out of every possible form of fair discussion.

3. Justice Holmes is acclaimed wherever sound legal thinking is understood. His thirty years on the Supreme Court bench have merited ever-increasing praise for wisdom. In an opinion rendered two years ago he said:

The test of truth is the power of a thought to get itself accepted in the competition of the market.

The words were spoken in all seriousness and apply to all kinds of reasoning. No thought can be proved correct by logic, but only by its power, in the long run, to persuade all competent observers.

4. Charles S. Peirce, the mathematician, expressed the same idea in abstract terms; he was a most severe and wary thinker, probably the most influential American philosopher of the past century.

Truth is something public. It must be something which affects every man. The method must be such that the ultimate conclusion of every man shall be the same. . . . Truth is the opinion which is fated to be ultimately agreed to by all those who investigate.

5. Professor Burtt, of Chicago, believes that it is no use to try to teach the art of thinking without warning students that they need some test of the rightness of their thinking. His greatest concern is to show them that they cannot test their thoughts by their own private standards—that it is no use to "just feel in my marrow." In his *Principles and Problems of Right Thinking* he pro-

poses the only test he knows by putting a series of questions in his concluding chapters:

> How can we establish an objective standard by which we can test contrasting doctrines? It is clear that, as yet, philosophy has discovered no such standard. . . . By what standard can we tell which type of thinking in religion is right? . . . Scientific method is that method of interpreting events which can be made verifiable *to any normal mind.* Shall this anywhere be surrendered in favor of a mode of explanation which depends on personal, subjective factors?

Professor Burtt does not answer the question for his students. He leaves them to search for any rational test of knowledge except that it can be verified by every normal mind.

6. One of the best known and most devout of American philosophers is William Ernest Hocking, of Harvard. In his argument for the existence of God he speaks thus of what knowledge is:

> An object of knowledge is, for the most part, a thing which you and I can verify together. . . . The truth of my assertion means that it is valid for you and other real persons in the same way that it is valid for me. . . . Nature is pre-eminently the world of socially verifiable things. . . . The necessary habit of looking at any truth is as if not I alone but the whole conscious universe were looking at it with me. . . . Without this habitual democracy of judgment, this habitual loss of my life in the universal judgment, I can have no life at all in Nature or in the world of thought.

The passage seems to me as beautiful as it is bold. It suggests the probability that Burtt and Peirce and Holmes are right in their fundamental estimate of what knowledge is. If you feel dubious, you can at least see

the possibility that they are right. You can suspend judgment until you have read the next chapter (about experience, on which all knowledge is based), and until you have read Chapter X, which shows that knowledge is just a balance of probability.

[*Note for Critical Readers.* Though we had best not be in a hurry to reach a full definition, it may be well to post here a statement of what the word *knowledge* is going to mean henceforth in this book.

a. *Negative.* This book is not concerned with the ultimate nature of knowledge. It may be true that we have no knowledge of anything except what goes on in our own brains—that is, not even the knowledge that there is an external world. It may also be true that our "laws of nature" are merely made in the mind and furnish no evidence about nature. We are not assuming that an outside world exists or that our observation of it has any validity. This book makes no assumptions whatever about the metaphysical nature of knowledge.

b. *The kind of mind we have.* The only action possible for the human mind is to work with a world that seems to be outside of us and that seems to force its regularity upon us. We do not suppose that this seeming must be true; we do not adopt it as a preliminary axiom or accept it as a necessary faith. We simply observe that the mind never has been able to go beyond itself and accomplish anything trustworthy in the vacuum where natural laws are denied.

c. *The kind of knowledge we can attain.* In the seeming world outside of us our mind is irresistibly forced to observe regularity. We do not assume regularity; we cannot prove it by going beyond our mental reach. We only find that all the practical affairs of the mind come to ruin unless we allow it to work with what we call "the undeviating laws of nature." Though we make no claim that they are realities in the universe beyond our senses, we cannot conceive their unreality. We call them real only in this negative sense—that we have no experience of their opposite, that we cannot imagine their opposite. Whatever is seen by all normal minds to be in accord with such natural laws we call knowledge.

d. *Knowledge is never guaranteed.* Even if all normal minds agree, at any one time, upon some item of knowledge, the belief in

it may prove false. We are so ignorant, so liable to error, that no knowledge can ever be guaranteed. A unanimous belief in witches did not make witchcraft a fact. A unanimous belief in evolution would not create everlasting knowledge. The knowledge of any generation is a balance of opinion, variable, subject to being overthrown. When any balance of opinion is practically unanimous among normal minds, we call it knowledge. It is the nearest approach we can make to being in accord with nature at that time, but it is relative and temporary. We must even recognize that a very small minority of thinkers may have hit upon an opinion that will be called knowledge in a future age. Much more must we realize that a severely verified law of science today (which is now properly called knowledge) may not be verifiable tomorrow. Whenever an opinion is so widely held that it is practically undisputed, that hardly anyone can conceive its opposite, that its probability is overwhelming—then we say that it is knowledge at present. But it is relative and is not guaranteed forever.]

CHAPTER VII

The Two Kinds of Experience

A microbe must have experiences. These experiences must be undeniable truth. When a tuberculosis germ snuggles into a depression in the membrane at the back of my mouth and has a sensation of being in a favorable feeding-ground, that experience is an indubitable fact in the universe. And if a microbe could philosophize about its feeling, that philosophy would be based on actual experience.

The conclusions at which a microbe arrived might be something of this sort: "Life is unending growth. The world consists only of me and food. Its purpose is to resist acid. Its meaning is to grow fatter and fatter. Its result is my eternally enlarging ego." We should have to grant that this reasoning is exact and that it is highly creditable, for it expresses all that the logic of a bacillus can reach from its limited experience. The bacillus cannot know that there is death in the world or other forms of life or other ambitions than finding food. Its philosophy must be limited by its experience.

An angel who read our human metaphysics would probably admit that it is as creditable as the microbe's, for it is based on actual experience and makes logical inferences. In fact the angel might grant that we are superior to the tubercle in one respect: we realize to a slight extent that our experience is limited. The tubercle could never reach such a high plane of imagination as to criticize his own sensations. What he feels he feels—and there's nothing more to be said. But a man, who can look down a scale of mentality ranging from himself to a yeast-plant, is in a position to look up. Of course he

can't see anything when he looks up. The universe that lies beyond his experience is thickly veiled from his eyes. But he can at least guess that beyond the veil there are ranges of knowledge which make his own experience seem like the dull feelings of a spore in the dark. We have not the least inkling of what the electricity is which forms the sand and stones, nor of the nature of force or time or space. All we know is the impressions that are produced in our minds. But our imaginations can take hold somewhat on the unknown, and in this flight of the imagination we raise ourselves high above mere bodily sensations.

The ceaseless and desperate efforts of all philosophy have never been able to discover what the sensations are. The profoundest thinker can only say: "I have to assume that there is some interaction between my soul and something which is not my soul (or something of which my soul is a part), and the name which I give to this interaction is *experience.*" No psychology can give any explanation of the nature of experience. No scientist can learn anything about that so-called "outside world" which seems to produce effects on us; he has to start with those effects, those impressions on our mind; he assorts them and charts some relations between them. But he never has got hold of any knowledge of that stuff or force which causes the impressions. From his most lowly observing to his loftiest mathematics he is dealing only with those mental results that are in our minds.

If that way of describing our utter ignorance seems to you exaggerated, if it seems either mystical or materialistic, be assured that it is nothing of the sort. It is only a plain statement of what many poets and scientists and philosophers and theologians have agreed upon. It is no denial of either religious intuition or scientific rigor. It is only a brushing away of the entanglements of ordinary

life, so that we may have an uninterrupted view of experience.

The sight may be rather terrifying to a person who has never seen it before, but he can get used to it. He need not feel confused. Nor need he have any suspicion that this chapter is going to be a philosophical discussion. As soon as his eyes are adjusted to the rather garish light, he will find that he is in a familiar place and is hearing about familiar facts of life. All I am doing is describing two different kinds of experience.

The first kind is beautiful and romantic. It is pictured for us in a captivating way by one of the world's most famous astronomers, Arthur Stanley Eddington, of the University of Cambridge. In 1928 he wrote a book called *The Nature of the Physical World,* which was a profound exposition of the most recent physics, yet a gay and humorous book. I had rather have that man's wisdom about modern science than any other wisdom that I have met between two covers. His mind is lucid and charming.

In his last chapter, entitled "Science and Mysticism," he shows how his religious conviction is based on experience:

I think that humor is not an unfair analogy for our mystical feeling for Nature, and I would venture even to apply it to our mystical experience of God. There are some to whom the sense of a divine presence irradiating the soul is one of the most obvious things of experience. In their view a man without this sense is to be regarded as we regard a man without a sense of humor. The absence is a kind of mental deficiency. . . .

In the mystic sense of the creation around us, in the expression of art, in a yearning towards God, the soul grows upward and finds the fulfilment of something implanted in its nature.

The following year Eddington delivered the annual Swarthmore Lecture, published as *Science and the Unseen World,* in which he again explained the basis of his religious convictions. (He spoke as a Quaker to an audience of Quakers.)

If religion is not an attitude towards experience, it is not the kind of religion which our Society stands for. . . . The problem of experiences is not limited to the interpretation of sense-impressions. . . . Are we, in pursuing the mystical outlook, facing the hard facts of experience? Surely we are. . . . If we claim that the experience which comes to us in our silent meetings is one of the precious elements that make up the fulness of life, I do not see how science can gainsay us.

This conviction of Eddington's is echoed by another Cambridge scientist of a more wide-ranging and philosophical sort, W. C. D. Dampier-Whetham. He is the author of the best history of science that I have seen; through the many fields of modern knowledge he holds a straight course, guided by thorough scholarship and a keen instinct for safe conclusions. Like Eddington, he concludes his book with a profession of faith in the experience of the soul:

Science must admit the psychological validity of religious experience. The mystical and direct apprehension of God is clearly, to some men, as real as their consciousness of personality or their perception of the external world. It is this sense of communion with the divine, and the awe and worship which it evokes, that constitute religion. . . . True religion is founded on the impregnable rock of direct experience.

There can be no doubt that this kind of direct experience in the souls of Eddington and Dampier-Whetham is some kind of real sensation. That *feeling* that they have

is as much a fact as any other sensation. The reality of it has been described by Santayana in the most discerning and poetical chapter of philosophy that ever I read—"The Discovery of Essence." He uses the term *essence* to describe those direct experiences of the soul, those intuitions, that arise within itself. The intuitions, he says, have the greatest clearness and force; there can be no error in them. "In this lucidity and calmness of intuition there is something preternatural. . . . The soul appears dwelling in its own world, and shining by its own light. . . . The character of each essence is indubitable. . . . The mind finds in the wilderness of essence a very sweet and marvelous solitude."

I have now presented you with three professions of faith in the absolute reality of those inner experiences of the soul. If you should search through a great library, you would hardly find any testimonies that were more complete or made by more dependable men. Nor do I know of any reputable writer who has disputed, or even cared to dispute, the reality of these feelings that arise in us. They are ultimate experience.

But what do the feelings correspond to? What relation have they to anything in the outside world? Santayana, when he said that the intuitions show a person everything with the greatest clearness and force, added in the same sentence, "but he can no longer imagine that he sees in these intuitions anything save their instant presence." A feeling is merely a state of mind. If I entertain myself with that state of mind, that private fact, well and good. Santayana explains that a man need not take offense at a flock of mental images "if he is scrupulous not to trust them and to assert nothing at their prompting." He tells us the way to escape from illusion: "Entertain the illusion without succumbing to it; accept it openly as an illusion; and forbid it to claim

any sort of being but that which it obviously has." He shows the error of men like Eddington and Dampier-Whetham: "The error came from *a wild belief about* the intuition.... To consider an essence is not even to broach knowledge of fact."

You may think that there is no need of lugging in a page of philosophy to show such a simple distinction. For the distinction amounts only to this, that my private sensations are facts in my mind, but that they do not prove anything about any facts in the world outside my mind. They cannot be verified by all normal men. My experience of a grizzly bear floating outside my tenth-story window does not prove that any kind of animal is there. Though it is an indisputable experience of my inner psyche, it is sheer illusion if regarded as knowledge to be recorded in a book about zoology. No poetry or metaphysics is needed, you think, to make the difference unmistakable.

Then why do men like Eddington and Dampier-Whetham not see the difference? Some of the most subtle minds of our age are using the word *experience* in two senses and are quite unconscious that there are two senses. If we are to understand the two kinds of experience, we had best call in some referee who has an affection for the first kind. Santayana is the most eminent and impartial judge I know. He considers that the direct experience of God is an illusion—pleasant and proper enough if recognized as a mental fact, but a sorry self-deception if considered to be knowledge of a fact that is verifiable by all competent observers. Santayana would gladly give his life in exchange for the conviction that Eddington has. The romance and glory of such a belief would be infinitely more valuable than all the rest of a human life. But Santayana cannot, for all his desire, discover that Eddington's belief has any resemblance to

knowledge of anything outside of itself. He supposes that Eddington selects the first meaning in the word *experience*—namely, "a feeling in my mind"—and then uses the word as if it had the second meaning.

The second meaning is this: "a perception which can be verified by all normal persons." Suppose that some night, as I am sitting alone reading a detective story, I have this experience: I am aware in my mind of a cavalry saber which seems to sway in the air three feet above my head and six feet in front of me, and which is smeared with a red liquid. Is this the first kind of experience—a mere private happening in my psyche? I guess that it is, since that sort of occurrence is quite unlike anything that I ever verified in the outside world. So long as I sit still and observe the swinging saber I have no way of telling whether it is the first or the second kind of experience. If I yell, leap up, grab at the saber, and if my hand encounters nothing; if a maid comes running in, turns on more light, and sees nothing; if my wife comes in and sees nothing; if we examine the room thoroughly and can find no evidence of any strange article in it—then I conclude that my experience was of the first sort. It was a fact in my mind—no possible doubt of that. But it does not correspond to anything that other people can see in the outside world. I recognize it as a delusion.

But suppose that when I leaped up my hand closed upon a piece of sharp steel and was cut, that the maid could see the saber and my wounded hand, that my wife could see a cord attached to it, that we could all see the cord extending down from a hole in the ceiling, that when we rushed upstairs we could all see the other end of the cord and could find that my twelve-year-old son was awake and could hear his confession that he had smeared the saber and swung it into the library to frighten his nervous dad. Then I should assume that my experience

was of the second sort—a perception that would be verified by as many normal friends as I chose to call in to observe the evidence.

Experience of this second sort is knowledge. If I gather several dozen similar verified experiences and classify them, I can compile an instructive chapter on the humor of children. When Galileo verifies his experience of seeing planets near Jupiter, knowledge results. When Patrick Manson verifies the experience of seeing malaria germs in a mosquito, knowledge results. Experience of this second sort is always knowledge for all men through all time.

An impatient or self-confident person, seeing the distinction so easily drawn, might conclude that Santayana was right and Eddington was wrong. But you and I had best not allow our minds to settle into any such conviction. We shall be more usefully employed if we think of what Eddington would do if he read this chapter thus far, and threw the book away. His piercing intellect, you may be sure, has some answer for Santayana. What it is lies beyond my imagination, but I know that Eddington would not be persuaded. He has some reason for thinking that he understands the simple matter of defining the word *experience,* and he could doubtless write a cogent essay to argue down Santayana's conclusion. He will go through the rest of his life unalterably convinced that he is not confused between two meanings of one word.

Therefore the question is disputable. Therefore a noble horse would say that the ideal man would suspend judgment and watch, with great curiosity and interest, to see what the trend of opinion is by 1940 and 1950. Is the vote in favor of Eddington's view going to grow smaller or larger?

No question is of greater interest, as we can realize if we reflect upon Harry Emerson Fosdick's statement:

"This individual experience makes religion real." If Eddington is right, Fosdick is right; and the future of Protestant religion is assured. But if Eddington is wrong, the Protestant religion has only a brief and rapidly declining future ahead of it. The issue is momentous.

The issue is already joined in theology. Henry Nelson Wieman is professor of the philosophy of religion in the Divinity School of the University of Chicago. His book, *The Wrestle of Religion with Truth,* has been recommended to me by thoughtful ministers as a worth-while presentation of the struggle that now goes on among progressive Protestants. He flatly contradicts Eddington's opinion about religious experience:

> If ever men perceive God, it must be through the senses. . . . Religion must rest upon objective facts, just as much as science. . . . Truth consists of concepts put into the form of beliefs that can be *verified by way of experimental operations.*

If Eddington has a belief that cannot be verified by competent observers like the Reverends G. B. Smith, J. H. Holmes, and J. H. Dietrich, then the Wiemans cannot accept it. Is the experience of Eddington and Fosdick going to prove verifiable? Or is religion going to admit that its experience cannot be verified? If ever any issue went to the bottom of human beliefs, this one does. Which way will the decision go?

If "individual experience makes religion real," then Catholic theology must be all a mistake, for the belief of that church is not based on personal intuition. That noted Presbyterian divine, the Rev. J. Gresham Machen, of the Princeton Seminary, makes short work of the value of individual experience:

If God is merely a fact of human experience, then I shall cease to be interested. . . . A divine Being that could be discovered apart from revelation—it would seem absurd to apply to such a Being the name of "God."

Dr. Cyril H. Valentine has written a book, *What Do We Mean by God?*, of which the *Yale Divinity News* says: "It is remarkably meaty. It abounds in tersely-worded sentences embodying clear thinking and profound insight." Dr. Valentine's insight into experience is as follows:

Whether religion is or is not true depends upon whether God is or is not real. We cannot infer the existence of God from the experience, since we need *to test the validity of the experience.* . . . Those who have the conviction of the presence of God are not likely to have their faith shaken by any doubts as to the objectivity of their experience. But such conviction of certainty cannot be taken in itself as sufficient evidence of the reality of the object of their experience.

A host of devout Christians, who are able reasoners about religion, conclude just as Valentine and Machen do—that Eddington and Fosdick are mistaken in their notion of experience. The ablest thinkers about Christian experience are cutting off each other's logical heads. This is a grisly sight. No wonder that the noble horses found human reason detestable.

Santayana's definition of experience is this:

I think it mere mockery to use the word *experience* for what is not learning or gathering knowledge of facts.

And by "facts" he means, as he expressly says, those observations that can be verified in a scientific way. He would feel that Eddington and Fosdick make a mock of

reason when they refer to their private intuitions as "experience."

John Dewey says that *experience* is a weasel word. He finds that many thinkers slip from one meaning to the other without realizing that they are weaving back and forth between what he calls "two universes of discourse." He defines the two universes: (1) purely mental states, which are momentary, private, and psychical; (2) a perception of that kind of verifiable knowledge which is acceptable in science. Dewey says that a thinker who flits from one universe to the other will land "in the most secluded of idealisms." He is amused by seeing an Eddington start bravely in the scientific universe of discourse, slide round the corner into his private psyche, and then proclaim that what he sees inside himself is outside of himself.

"The term experience," says Prof. G. D. Hicks, "is excessively ambiguous." He is worried by the spectacle of our gravest theologians and philosophers galivanting from one universe of discourse to the other on the back of a slippery word. A spectator of this whirligig will feel desolated or mirthful according to his temperament. For my part, I dare not laugh, and I try not to despond. Perhaps there will always be two opposite opinions about the meaning of *experience,* both of which will be upheld in the noisy circus of reason. If an Eddington and a Dewey must continue to hold contradictory opinions, what hope is there that the rest of us can ever think straight? One faint hope glimmers in the words of H. W. Schneider: "Our knowledge of the factors which govern the credibility of beliefs is still in its infancy." Perhaps the knowledge is growing. If it can decide on what experience is, it will at least become adolescent. But Scott Buchanan slashes at this hope: he finds that Dewey's own system of experience has "the disease of

Ultimacy" and is threatened with *rigor mortis*. Woe, woe!

Most of the reviewers of Eddington's chapter derided it. The neatest shaft of wit against it was delivered by Gilbert Murray in *Harper's* for January, 1930:

I am not denying the dogmas: it may be true that Lazarus rose from the dead or that a certain experience of Professor Eddington is really a contact with God.

But the chorus of approval of Eddington's experience is larger and louder. We have no assurance that human reason will ever agree on what experience is.

No wonder that Theodore Dreiser despaired of all the theologies and philosophies:

All my life I have speculated concerning the mystery of my being here.... I have thought of but little else.... Yet here I sit, scribbling briskly concerning something about which finally I know nothing at all, and worse yet, about which no one can tell me anything.

The majority of mankind seems to be unlike Dreiser. Most of us speculate, reach conclusions, scribble them briskly, and confidently tell the world that what we write is an explanation based on experience. We find the experiences derived from our souls much more to our liking than the narrow experiences that can be verified by all men alike. "America," says Bertrand Russell, "seems to me to have less respect for fact than any other civilized country." An editorial writer in the New York *World* has given an amusing example of our dislike of fact:

One of the most effective illusions of humanity is that repose and tranquillity are found in nature, where the sum of life is the rule of the claw.... The fable has potency and the fact none.

Mankind has never felt much impressed by the direct experience of facts. Malinowski furnishes an example that is typical of our mentality. He says the people of the Trobriand Islands have a belief (based, of course, on some inner experience) that a child never looks like its brothers or sisters. He was never able to persuade the Trobrianders that identical twins had any resemblance to each other. The inner experience quite swamped and destroyed the experience that the eyes were trying to convey from the outside world to the private psyche.

It is usually safe to assume that no experience of the facts of nature will make any headway against an inner conviction. For example, nothing in the scientific method could ever reveal to Eddington or Fosdick anything that conflicted with their private experiences. Hence it is natural for the Eddingtons and Fosdicks to assume that the Deweys and Santayanas have an inner repugnance to the experience of God, and so are unable to perceive it. No idea is more common in religious reasoning than the supposed unwillingness or hostility of the non-religious mind. Now there must be men who feel such hostility, but I have never happened to know one. Every man of my acquaintance who thinks Eddington deluded desires strongly to believe that Eddington's experience is valid; he wants it for himself; he would rather have it than any other possession in his soul's store. Yet, despite his longing, he is unable to have the experience. For instance, E. A. Burtt speaks of himself as one "whose lot is such that the notion of a real God is honestly impossible." The lot of such philosophers is seldom attended to by men who expound God. If they assume that unpersuaded men are denying evidence or are holding the opposite conviction, they are using clever tactics, for then their phrases ring with force. But if they had to take account of a Santayana who is more than eager

to share their experience, they would be dumb. For then it would appear that their experience cannot be verified, even by friendly and prejudiced observers.

The most remarkable fact about men who rely on private experience is that they have no tolerance for any other man's private experience. Ask a Jew about the transmigration of souls, or a Baptist about Siva, or a Mormon about Christian Science. Each is scornful of these forms of unscientific experience. Fosdick is as scientific about the virgin birth as Mencken is; and Eddington is utterly scientific about Fosdick's conception of immortality. If every reasoner who cherishes a particular private opinion is intolerant of all the myriads of other private experiences, how can he suppose the peculiar creation in his own soul is worth anything?

The apparent tendency of modern thought is toward discarding the private experiences and accepting only the sort of experience that can be verified by all men. Prof. H. M. Parshley thus expresses what seems to be the majority opinion of essayists and poets and scientists nowadays:

> Those who claim to bring us word of the ineffable and the inscrutable are really strangers to the way, the truth, and the life; and the modern world is repudiating their time-honored leadership.

As the years go by, we shall see what we shall see of this repudiation.

At present we are a strange spectacle to a rational horse. We believe in private experiences; we are scarcely able to perceive the verifiable experiences that are held before our eyes; and we have no way to tell, no desire to tell, whether one kind of experience is better than the other.

CHAPTER VIII

The Two Kinds of Faith

If a small strip of iron is rubbed on a magnet and then suspended so that it is free to swing about horizontally, one end will always point to the North Magnetic Pole. It is a law of nature that a magnetized bar always acts in this way. No exception to the law has ever been observed. Hence sailors have absolute confidence in the law. This trust in universal and undisputed experience is the first kind of faith. We say that we have faith in the compass.

When a devout Mohammedan dies, his spirit is entertained in Paradise by beautiful nymphs called "houris." This is believed by some two hundred million people, many of whom are keenly intellectual and all of whom are guided by a venerable and deeply reasoned theology. We may suppose that a Mohammedan has strong proof of the belief, for he accepts it with complete confidence. But the Hindoos and Christians cannot feel the force of the proofs, and so do not share the belief. The belief is not universal, not undisputed. This is the second kind of faith. A Mohammedan says that he has faith in houris.

The first kind of faith may be called scientific; the second kind may be called religious. It is difficult for a Protestant to see any resemblance between the two kinds. To him it appears that one word, *faith,* is used to describe two different sorts of convictions.

Of all the strange shows that reason has staged in the last century, the most remarkable is the sleight-of-hand performance with "Scientific Faith." It was produced by the scientists themselves. Huxley (quite unwittingly) gave an exhibition seventy years ago when,

in "The Study of Zoology," he wrote about "a firm and living faith in the existence of immutable laws." In "Science and Morals," he said: "It is the high mission of science to be the priestess of that firm and lively faith."

This faith of science has been paraded in the court of reason at frequent intervals. In 1928 J. W. N. Sullivan rehearsed it in *The Bases of Modern Science.*

> Science, therefore, rests not upon a rational basis, but upon an act of faith.

Since that time I have come upon similar professions about faith by Whitehead and the elder Haldane. Nicholas Murray Butler has said, "Faith is the last word of *twentieth-century* science."

Some writers have spoken of another phase of faith—the unquestioning acceptance of science by laymen. For example, Langdon-Davies says in *The New Age of Faith:*

> No other age has been so noticeably an age of faith as the twentieth century. . . . Ninety-nine men out of every hundred approach science and its works in the same spirit and through the same gateway as their ancestors approached God and His.

The notion that science is taken on faith animated C. E. Ayres to write the mocking defiance which he entitled *Science: The False Messiah.* "The truth of science," he says, "is established only by belief, after the manner of all folk-lores."

So we are accused of superstitiously reverencing science by an act of faith, and scientists accuse themselves of basing their theories on a faith which has the same foundation as religious creeds. Though I don't find this accusation in many books, there is reason to think that many scientists, if they were questioned about the founda-

tion of faith, would agree with Sullivan and Whitehead and Haldane. I once proposed Sullivan's dictum for discussion in a club of graduate students in science; half of them voted that it was metaphysically correct.

The faith which they had in mind was a trust in orderly, invariable laws of nature. All science is a study of these fixed laws. For instance, since we have never seen water run uphill, we say that it is a law of nature that water runs downhill. And we can form a science of hydrostatics by classifying this and similar observations of fact. But we have no way to prove that in the universe beyond our senses there is any such reality as a law that water "must" run downhill. We simply accept it as a truth in all human experience. And this acceptance of a fact of universal experience—without any proof which goes beyond experience—is the "faith" on which science is based.

If Huxley and other safe reasoners have used the word in that sense, there is no need of quarreling with it. There cannot be any argument as to the basic fact of science—that it always finds nature orderly so far as our senses can reach, and that it builds on the foundation of that fixed order. And it may be proper to use the word "faith" for our confidence in the order, because one definition of the word is "confidence, reliance, trust." If the human race has never found any exception to a certain rule, we rely upon the rule, trust it, have faith in it.

So you see before you a plain, humdrum, matter-of-fact word, *faith,* which describes the confidence we feel that the sun will rise tomorrow as it has always risen, that bricks will continue to be just as heavy as they have always been, that iron will continue to rust if exposed to moisture.

Now elevate your mind above this sordid world of fact and gaze into heaven, which the dictionary tells us

is "the celestial abode of blessed spirits, the region of endless happiness enjoyed by angels in the immediate presence of God." You achieve this view by a faith which the encyclopedia defines thus: "personal certitude as to what is not proven with logical certainty." In your mind, and in millions of other minds, there is an experience of heaven which produces certainty. So you have a right to your belief. But in an equal number of millions of minds there is no such experience and no such certainty. Where your inner eye sees celestial glory, they can see nothing at all. Private convictions about heaven are of all sorts, of all degrees of certitude, and have varied throughout history like the clouds on a summer day.

The contrast seems to me complete. On the one hand is the confidence that the sun warms me, a confidence which has always been shared, invariably, by all men alike. On the other hand is a confidence that has varied through all possible phases, and that now varies through the whole gamut from zero to ecstatic vision. When I hear men argue that these two kinds of faith are similar, my brain reels. I wonder whether I have a rational mind.

The Rev. Harry Emerson Fosdick has made this argument most skilfully and powerfully in *The Meaning of Faith.* Here are some sentences that indicate his reasoning:

Faith is one of the chief ways in which continually we deal with reality; it is a road to truth, without which some truth can never be reached at all. . . . For one thing, no one can know persons without faith. Tennyson knew Hallam well, and this knowledge came, as all such knowledge comes, by faith. . . . So far is faith, then, from being blind credulity, that it alone deserves to be called the Great Discoverer. . . . All the elemental, primary facts of life are faith's discoveries; we have no other means of find-

ing them. . . . All our surest knowledge is based on assumptions that we cannot prove. . . . "As for the strong conviction," Huxley says, "that the cosmic order is rational, the faith that throughout all duration unbroken order has reigned in the universe, I not only accept it, but I am disposed to think it the most important of all truths."* Faith, then, in Huxley's thought, is not a makeshift when knowledge fails. Rather by faith we continually are getting at the most important realities with which we deal. . . . If faith is thus the pioneer that leads us to knowledge, . . . why should we be surprised that faith is our road to God?

I should no more wish to debate against Fosdick's idea of faith than Fosdick would care to debate with the Pope about the faith which is based on the authority of the Catholic Church. For Fosdick would like to have the peace and exaltation of mind that the Catholic faith gives; he must envy the Catholics, who have a faith which does not depend on their own frail skill in dialectic. In the same way I envy the Baptists who can share Fosdick's kind of faith. It seems to me that the world would be happier if we could all agree on that faith.

What I want to do in the rest of this chapter is to inquire, with an amazed curiosity, how any Protestant theologian can find a similarity between his religious faith and the so-called "faith" of science.

The first query is that little one which our simian brain never relishes: What did Huxley mean by the "cosmic order" and by the "conviction" that he had about it? The cosmic order, of course, is the regularity which we observe in nature, which Huxley usually referred to as

*Huxley denies (in the third Lecture on Evolution) what he seems to say here: "Though we are quite clear about the constancy of Nature at the present time, it by no means necessarily follows that we are justified in expanding this generalization into the infinite past and in denying, absolutely, that there may have been a time when Nature did not follow a fixed order."

"the laws of nature." What did Huxley mean by a "law" of this kind?

He explained at length in several essays that the word *law* is a most unfortunate metaphor. In "An Episcopal Trilogy" he speaks of "the mischief which has been done by a mistaken apprehension of the real meaning of 'natural order' and 'law of nature.'" He labored with all his force to show that we have no knowledge whatever of anything like a law or a law-giver in the world. If we observe that men die, if we never can learn of a man who did not die, if in all history of all places there is no record of a man who did not die, then we expect that all men will die. The human mind never perceived this generalization in a lump, never made any such assumption, never accepted it by an act of faith. It is a truth which savages do not perceive or assume; indeed they cannot be persuaded to adopt a belief so opposed to what they seem to observe. Pioneering faith has always reported to the mind that men do not die except because of ill luck. Mankind has been forced by accumulated experience, strongly against faith and reason, to conclude sorrowfully that all men seem to be mortal. This disagreeable expectation is forced upon us so powerfully that we have to trust it; we make our wills in accord with it and live by it every hour. If we choose to use the word "law" for this strong probability and choose to say that we have "faith" in it, we are at liberty to do so.

If, then, we put other meanings into those two words, we are merely scrambling definitions. The fact remains, after we have played our little game of logic, that the most invariable law is only a probability, and that faith is only a confidence in that probability. We have no knowledge of any law, nor any mystic assurance about it. No scientist has a faith that he knows his friend. He does

not pretend to understand what his friend is or how he can be conscious of a friend. He is simply unable to conceive—as every normal man who ever lived has been unable to conceive—how else to live than by supposing that his friend exists and has dealings with him. If any scientist knew that one fourth of his colleagues lived without such a supposition, he would abandon it as a sheer empty notion.

Huxley found that clergymen were the ones who most persistently falsified the meaning of *law*. In a reply to a sermon by the Bishop of Manchester he said that the Bishop's difficulty arose from not understanding what is meant by *order* and *law:*

> Nobody can presume to say what the order of nature must be; all that the widest experience (even if it extended over all the past time) could justify would be a proportionally strong expectation that events will go on so happening.

In another essay he said:

> The law of gravitation is a statement of the manner in which experience shows that bodies do, in fact, move towards one another. . . . The laws of nature are a mere record of experience.

In the essay "On the Physical Basis of Life" Huxley tried to make his conception of *law* unmistakable to the Bishop. The Bishop had been much exercised about the "necessity" that he supposed was in natural laws; he had spoken of them as "iron" laws; and had scolded Huxley for assuming a fixed order in nature which could never be broken by miracles. Huxley denied that he had ever claimed any such rigid necessity; he denied that he had ever thought miracles were impossible; he denied that he had ever thought things "must" or "could not" hap-

pen because of natural laws; he denied that he had any knowledge of such laws:

And what is the dire necessity and "iron" law under which men groan? Truly, most gratuitously invented bugbears. I suppose if there be an "iron" law, it is that of gravitation; and if there be a physical necessity, it is that a stone, unsupported, must fall to the ground. But what is all we really know, and can know, about the latter phenomena? Simply that, in all human experience, stones have fallen to the ground under these conditions; that we have not the smallest reason for believing that any stone so circumstanced will not fall to the ground; and that we have, on the contrary, every reason to believe that it will so fall. It is very convenient to indicate that all the conditions of belief have been fulfilled in this case by calling the statement that unsupported stones will fall to the ground "a law of Nature." But when, as commonly happens, we change *will* into *must,* we introduce an idea of necessity which most assuredly does not lie in the observed facts, and has no warranty that I can discover elsewhere. For my part, I utterly repudiate and anathematize the intruder.

Thus Huxley formally laid a curse upon the notion that science pretends to have any knowledge of what a natural law is, beyond the fact of universal and undisputed experience.

Now I want to make my second query: What did Huxley mean by the word "faith"? For he also anathematized this word. He vehemently asserted that he had no "faith" in any law. In the essay "On Improving Natural Knowledge" he sounds as if he had foreseen how a clergyman was going to reason fifty years later and had denounced him in advance. In 1866 Huxley explicitly repudiated the theological reasoning:

For the improver of natural knowledge blind faith

is the one unpardonable sin. And it cannot be otherwise, for every great advance in natural knowledge has involved the absolute rejection of authority, the cherishing of the keenest skepticism, the annihilation of the spirit of blind faith. The man of science has learned to believe in justification, not by faith, but by verification.

And in 1889 he repudiated once more:

Preachers, orthodox and heterodox, din into our ears that the world cannot get on without faith of some sort. There is a sense in which this is obviously true; there is another in which it is obviously false; and it seems to me that *the hortatory, or pulpit, mind* is apt to oscillate between the false and the true meanings, without being aware of the fact.

Why should the pulpit mind in the twentieth century fail to take note of such a complete disclaimer? Was Fosdick ignorant of the whole burden of Huxley's thought about faith? Did he suppress Huxley's real thought by design? Was he concerned only to make a strong argument, and not to seek for truth? It is hard to believe that any of these explanations is true.

Huxley says that, *in one sense,* all our daily actions and all our reasonings depend on "the great act of faith which leads us to take the experience of the past as a safe guide for the future." But he devotes the next paragraph to the man who has the other kind of faith, the theological faith, and concludes with this stern warning: "Let him not delude himself with the notion that his faith is evidence of the objective reality of that in which he trusts. Such evidence is to be obtained only by the use of the methods of science."

Leonard Huxley tells us of a kind of lie that was specially hateful to his father, the lie from foggy thinking, and adds: "With this he classed 'the sin of faith,' as he

called it." Huxley took high moral ground when he denounced the kind of faith that Fosdick preaches:

This religious faith will too often be found to be, not the mystic process of unity with the Divine, but that which the candid simplicity of a Sunday scholar once defined it to be: "Faith is the power of saying you believe things which are incredible." Now I, and many other Agnostics, believe that faith in this sense is an abomination. We feel that the disagreement between ourselves and those who hold this doctrine is even more moral than intellectual. It is desirable that there should be an end of any mistakes on this topic.

We may now define the two kinds of faith in parallel columns:

Huxley's faith	Theological faith
A confidence in uniform experience so long as it can be verified by all normal men, but no longer.	A mystical conviction that never has been verified.

The theologians include both meanings in one word. Any scientist who feels inclined to say that, as a matter of metaphysics, his business is based on faith should ask himself whether he uses faith with Huxley's meaning, with the theological meaning, or with some meaning that he has not defined for his readers.

It is not likely that scientists will continue much longer to furnish ammunition for theologians who can do so much damage by discharging ambiguous words out of a logical howitzer. Scientists must learn the fundamental truth which Fosdick once expressed in the *American Magazine:* "Words are mighty. They arouse us, inflame us, dominate us, guide us and misguide us." Scientists have never suspected how a little word of five letters can dominate a whole theological treatise.

Even if scientists continue to be unsuspicious of the power of a word, the very nature of their subject-matter is now leading them away from confidence in the rational order of nature. On every hand the philosophical scientists of today are proclaiming that the universe seems rational to us merely because we have to examine it with human reason. They have almost quit thinking of "a rational order" in nature. They say that we call the order rational merely because we cannot perceive anything in nature which does not accord with the way our minds happen to work. Eddington tells us that "physics is no longer pledged to a scheme of deterministic law," and Gilbert N. Lewis says, "It is indeed a serious question whether the conception of causality can be regarded as a scientific concept."

Prof. P. W. Bridgman, of Harvard, in *Harper's* for March, 1929, put the case startlingly. He admits that the man of science has had a cardinal article of faith—that the world is a world of order. Then he explains that in the most recent physics a limit has been reached where the order of cause and effect is no longer observable. "One may be sure," he comments, "that a principle which demands the sacrifice of the cardinal article of faith has not been accepted easily. . . . A bound is thus forever set to the curiosity of the physicist. What is more, the mere existence of the bound means that he must give up his most cherished convictions and faith."

And what happens when a physicist is called upon to give up his cherished faith? Does he think that science is ruined? He sees no loss whatever. If he is worthy of the name of scientist, he sees a new vista of knowledge opening up, is pleased with a romantic new development. He discards his faith as readily as a carpenter throws away a damaged saw. He never had any interest in the theory except as a tool for doing work. He looks about

for some new theory that will serve for a time. His science is not diminished; it has become larger and more alluring.

But how would a clergyman feel if called upon to give up his theological faith? He would see that everything dear to him is threatened; he would know that nothing will be left if his faith disappears; and therefore he would have to defend his faith with all the fervor that passionate reason can command. The two kinds of faith are as different as a saw and a dogma.

The difference is revealed in Sarton's huge *Introduction to the History of Science.* On page 7 he says that the teachings of science and religion are identical, but he is referring only to the similar way in which they direct men's minds to the "eternal aspect" of things. On page 23 he shows how diametrically unlike science and religion are:

> The domains of science and of religion are essentially different. Science is reason organized and systematically applied. Religion is a reasoned abdication of reason.

I think this apparent contradiction in Sarton's book is a fair sample of how theologians can make a telling point by quoting some detached sentence from a scientist and saying nothing about the context which shows a quite opposite meaning. The burden of the whole of Sarton's first chapter is that "the true scientist is ever ready to abandon any part or the whole of his theories," whereas "religion subordinates reason to faith."

A remarkable case of the same sort is the closing sentence of Hugh Elliot's *Modern Science and Materialism:* "The evils which we make for ourselves will only fall away under the subtle but all-embracing influence of a true Faith." That would be a capital quotation in a

sermon—especially considering the capital *F*. But read on pages 137-43:

> The main purpose of the present work is to defend the doctrine of materialism. . . . The doctrine stands in direct opposition to a belief in any of those existences that are vaguely classed as "spiritual."

Whenever we are confronted with a statement that any scientist thinks "faith" is valuable, we must inquire what kind of faith the rest of his book is talking about.

The so-called scientific "faith" is just a handy supposition, useful only so long as no objection is raised to it by qualified investigators. But religious faith is a basic belief, without which religion topples to the ground.

In *The Universe around Us,* by Sir James Jeans, one of the most celebrated of modern physicists, I find no reference to any scientific faith. Instead, he speaks of

> a growing conviction that the ultimate realities of the universe are at present quite beyond the reach of science, and probably are forever beyond the comprehension of the human mind.

The men who are now in the van of science do not speak in terms of faith, but in terms of utter ignorance, like this passage from Weyl:

> We must state in unmistakable language that physics can in no wise be regarded as lending support to the belief that there is a causality of physical nature which is founded on rigorously exact laws. . . . The existence of matter still remains a mystery.

The only sort of faith that science now knows is a temporary and makeshift hypothesis, as d'Abro shows:

> We see that the theory of relativity is exceedingly fragile and might be overthrown at any moment; *but this is precisely what militates in its favor.*

Imagine a theological faith that was valuable in proportion as it was fragile!

Modern thought seems increasingly unwilling to have any dealings with faith. When Laski rendered his beautiful tribute to Justice Holmes on his eighty-ninth birthday, he said:

> Of ordinary faith he has none; religious affirmation seems to him a claim to greater knowledge than he would admit. . . . His philosophy is prepared to accept whatever the morrow may bring forth. It is willing to see the world shaped by other men to a pattern it does not approve.

When we reflect upon this mystery of how men can argue today for a faith that is being abandoned by such a host of the most candid minds, we realize why the Houyhnhnms felt as they did about human reason. We are tempted to believe that in this whirlpool of modern thinking the conclusion of Hobbes is still the only explanation: "It is certain therefore that Faith is the gift of God, and hee giveth it to whom hee will."

CHAPTER IX

The Two Kinds of Substance

The first six chapters of this book explained why we do not rely on reason unless it can be verified by all normal men; unless an observation or an idea appears true to all qualified judges, it remains a mere opinion and is not called knowledge. Chapter VII explained why private experiences do not prove anything about the world unless they can be felt by all of us, and so are verified. Chapter VIII explained that faith may be only a private conviction about religious matters, and that science has no conviction which is in the least similar to such faith. We saw that the words *experience* and *faith* contain double meanings and that all the wranglings about them are caused by not noticing in which sense they are used. In this chapter I will describe another word with a double meaning, one which has ruined more thinking and destroyed more peace of mind than all the other contents of the dictionary. This is the mighty and terrifying term MATTER.

The human race has always taken it for granted that we know what matter is. Matter is that dead stuff that always lies in lumps until some force kicks it into motion. If you set matter in motion, it will continue in that direction at that speed until some other force acts upon it. Matter is that more or less hard substance that you can feel. Matter is anything that occupies space. Oh, anybody knows what matter is.

But late in the nineteenth century a few men began to realize that this most brutish word in the language was undefinable. Karl Pearson had good sport by holding up for inspection the various definitions that had been

given by the greatest physicists, and showing that not one agreed with another, that not one was tenable. All that a dictionary can do with the monstrous word is to set down phrases like these: "that which offers resistance; that which can be moved, broken, or otherwise modified, but which cannot be destroyed or produced."

The effort to define matter is far harder than the mere perplexity of confused meanings. We have no knowledge to start with. Suppose that you are looking at a small drop of sulphuric acid which hangs on the point of a needle, and imagine that you can become infinitesimal in size and can go on a tour of exploration to the innermost recess of this bit of liquid. We will agree that we have some knowledge of this cluster of matter, for all normal men see it alike, smell it alike, can verify its action upon a piece of marble, can always distinguish it from other kinds of acids, can agree that no mental quality is observable in it. You can follow the safe guidance of a chemist and go an immense distance within the drop, until you reach its molecules. No eye has ever seen a molecule, and it is unlikely that any eye ever will see one; but all the chemists of the world are unanimously convinced that a molecule is a reality. They have very strong reason to suppose that it is the smallest unit of substance which behaves like sulphuric acid. They have even calculated its approximate size—something like a ten-millionth of an inch in diameter.

All chemists feel confident in taking the next step toward the heart of the mystery of matter: they agree that this molecule is composed of seven atoms—one of sulphur, two of hydrogen, and four of oxygen. Somehow—so the chemist believes—when these seven particles are chemically united, they produce a substance that has qualities quite unlike anything that could be suspected from their individual qualities. The chemist feels famil-

iar with atoms and cannot doubt that he has absolutely verified knowledge of their existence, though he does not pretend that he understands anything about them except their relative weights.

The physicists of the twentieth century have been taking the next step in the penetration of matter. They tell us unanimously that the atom is not an inert bit of stuff, but is a complicated structure in which there are quite inconceivable velocities of—well, of some things that move with velocity. These things were christened "electrons" and were described as centers of electricity. The mathematicians secured formulas which indicated that electrons revolve quadrillions of times in a second. Lately this interpretation has been considered too simple; it seems more probable that the activities within an atom are complications of waves of force and that these forces extend indefinitely through all space.

Beyond this point the physicist cannot see anything, not even with the boldest gaze of speculation. He seems to have approached a limit where all conceptions of energy and mass and time are inadequate. Signs are that the human mind has no machinery, in its most extended mathematics, for comprehending what goes on within the atom. And even if some equations can be derived which represent those conditions, it may be forever impossible to translate the equations into human speech. We have no language, no conceptions, for expressing what the figures point to. One illustration of this incommunicable state of affairs may be glimpsed in a sentence of Eddington's: "A particle may have position or it may have velocity, but it cannot have both." At this border-line of investigation physicists seem to find in the subatomic world that motions occur without a cause. Eddington playfully says that "an electron decides how large it ought to be." He tells us that we must be prepared to

encounter entities which are not measurable in any way. He warns us as follows: "Now we realize that science has nothing to say as to the intrinsic nature of the atom. . . . Why not, then, attach to the atom something of the spiritual nature of which a prominent characteristic is *thought*?"

Eddington loves his little joke, and it is not likely that he wants us to take this intellectual atom very seriously. But he is quite seriously telling us that he does not know anything about the nature of an atom. He thinks that only a blind intellect can suppose the universe to be composed of "mere matter." If anyone supposes that he knows what matter is, and if he supposes that there is nothing but matter in the universe, he is called a "materialist." Eddington thinks that a materialist is a silly, shallow person.

Alfred North Whitehead, the veteran mathematician and philosopher of Cambridge and Harvard universities, thinks the same. He considers that materialism is just a scientific abstraction which makes no sense outside of a very limited field of logic. To him it seems that all nature is an organism, and that the only realities are living forms. The whole organism, he argues, alters the nature of its parts:

> The mental states of an animal modify the ultimate smallest organisms, such as electrons. Thus an electron within a living body is different from an electron outside it, by reason of the plan of the body.

Few modern physicists would understand Whitehead, and fewer still could agree with such a curious conception. But all of them (so far as I can learn) would sympathize with him in denying materialism. I have never been able to find any book by a reputable modern scientist

that defended materialism. To modern scientists the universe is completely mysterious. To assert that there is nothing beyond matter, no forces hidden beyond our senses, is to claim a knowledge which no rational scientist possesses.

If there were nothing but matter in the universe, and if all this matter moved in accordance with fixed natural law, then the universe would be a sort of mechanism. Hence another common epithet for materialism is "mechanism." And if all motion is thought of as mechanically determined by invariable law, the doctrine is called "determinism." If we wish to describe a system of reasoning which assumes that there is no power beyond natural law, we call it "naturalistic." These three terms—naturalistic, deterministic, and mechanistic—are all implied in the term materialistic; so we may use this latter word to refer to all the others.

Materialism is a term of reproach. It is hurled at science by many theologians and philosophers because these gentlemen understand that science claims there is nothing in the universe but matter which operates under some iron laws of necessity. Hence you would expect to find in any collection of various kinds of scientific books a number of volumes which were based on materialism. But I have never seen one. When I ask for an example of such a book, no one ever refers me to it. A materialistic scientist is a very rare person, so rare that I cannot learn of his whereabouts. What does a religious essayist have in mind when he grieves at the materialism or the mechanism of science? I could never discover.

You will understand my bewilderment if I describe the case of Huxley. Paul Elmer More accuses Huxley of thinking that "the world is nothing but a machine," and of supporting "Darwinian materialism." G. R. Elliott speaks about Huxley's "blundering pride of naturalistic

sophistry." Yet Huxley repeatedly and vehemently denied materialism:

I repudiate, as philosophical error, the doctrine of Materialism. . . . It seems to me pretty plain that there is a third thing in the universe—to wit, consciousness—which I cannot see to be matter, or force, or any conceivable modification of either. . . . If I were forced to choose between Materialism and Idealism, I should elect for the latter. . . . Science gives no more ground for doubting the freedom of the will than the common sense of mankind does. ("Science and Morals.")

I am no materialist, but believe materialism to involve grave philosophical error. . . . The materialistic position is as utterly devoid of justification as the most baseless of theological dogmas. ("On the Physical Basis of Life.")

Huxley must have seen the dogma of materialism in print, for he speaks of "all the materialistic writers I know of." And apparently there was a time when materialism had a considerable vogue, for Dampier-Whetham says, "At the beginning of the twentieth century the majority of men of science held *unconsciously* a naïve materialism." He remarks later in the chapter, "The old materialism is dead." It seems to be not only dead, but buried, quite forgotten by living science.

Why, then, should essayists continue to talk about materialism as if it were a live issue? I can imagine only one explanation—that science knows nothing about what lies beyond matter, that science cannot verify any theory of what lies beyond matter, that science therefore cannot discuss what lies beyond matter, and that this ignorance is dubbed—naturally, but falsely—"materialism."

A parallel case will illustrate, the word *atheism.* Huxley never denied that there is a personal God; he was simply unable to get in contact with God; so he had to remain ignorant; he coined a word, *agnostic,* to describe

his ignorance. Huxley considered that the most illogical and brainless act conceivable was to deny the existence of God. He simply confessed that he had no knowledge of the subject. Huxley illustrated scientific ignorance thus: "If a man asks me what the politics of the inhabitants of the moon are, I reply that I do not know." The philosopher who cares to speculate about the political preferences of the man in the moon is within his rights, for he may hit upon the correct solution. But he ought not to call me some bad name like "ahomolunist" if I have to confess that with my astronomical instruments I have not been able to investigate the politics of the moon.

If certain dogmatic people form themselves into a society of atheists and declare that they know there is no God, that is their privilege; but they have no right to apply any hard name to me if I am unable to verify their opinion. So if there are still in the world some dogmatic biologists who affirm that there is nothing beyond matter and force, they must be allowed to hold that peculiar philosophy; but they are not entitled to call me a "Divinist" if I have to remain ignorant. Since I cannot verify their opinion about the vacuity of nature, I am compelled to remain ignorant. In just the same way it is sheer bad manners to call Huxley or Darwin materialists because they did not know about politics on the moon or the forces that lie beyond science.

A good example of how commonly people misunderstand materialism may be seen in Hugh Elliot's book that was referred to in the previous chapter. He says flatly that "the purpose of this work is to defend the doctrine of materialism," but a few pages later he explains himself: he is concerned only with that positive sort of knowledge that can be acquired by the scientific method; he says, "I would not for a moment defend materialism in a metaphysical sense, as if I were to affirm that matter is

an ultimate fact." Most modern scientists will not affirm anything about ultimate facts; they limit themselves to that little realm of knowledge that can be verified by all men alike. They work with what we call "matter." And that is the name of one of the so-called substances in the universe.

The other name is "spirit." Some men consider that matter is imaginary and that the universe is entirely composed of spiritual force. J. S. Haldane holds this belief:

> I wish to emphasize as strongly as I can that the belief in a merely physical world surrounding us has no basis. . . . It is only an imperfectly revealed spiritual world that we had taken for a material world; and so the world of our experience is a progressive realization of the spiritual world.

Haldane finds ordinary philosophy and theology just as materialistic as science. He says that there is no need for a supernatural element in religion, "because conscious behavior contains within itself the revelation of God's existence and nature." His opinion is that a personal God, an individual who is distinct from the universe that He created, is a materialistic idea. "There is," he says, "no physical reality outside God."

Robert A. Millikan, the physicist who is perhaps better known in America than any other, seems to share Haldane's view or at least one similar to it:

> After all, is there anyone who still talks about the materialism of science? . . . The God of science is the spirit of rational order, the integrating factor in the world of atoms.

Millikan frequently speaks of "nature, or the universe, or God, whichever term you prefer." So it would seem

that he considers the universe to be one spiritual principle.

Bertrand Russell's opinion is of a somewhat similar sort though he would avoid the term *spirit*. He says: "I regard the world as composed of only one kind of stuff—namely, events—each event being a self-subsistent entity." If a universe of events is not spiritual, at least it is not material.

Santayana finds the distinction between matter and spirit impossible to make:

I do not know what matter is in itself; but what idealists call spirit is, in respect to my spiritual existence, precisely what I call matter.

When Santayana represents himself as talking with the souls of Greek philosophers in Limbo, he expresses the same idea:

I know that matter, the oldest of beings, is the most fertile, the most profound, the most mysterious; it begets everything, and cannot be begotten. . . . Matter is alive, since it has bred every living thing and our own spirit.

Such flights of imagination may seem so far beyond ordinary life and knowledge that they signify nothing. But their reasoning may be brought down to earth and applied to the humblest facts. Try the experiment with this clover seed that I show you upon the end of my moistened finger. It is a golden-brown ball, a thirty-second of an inch in diameter and weighing no more than a thousandth of an ounce. We do not think of it as spiritual. We say that it is composed of matter.

But it contains within its shell the most mysterious power. Let it sprout in favorable soil, and its cells multiply to millions and billions. Each new cell is

a life in itself, so utterly beyond our comprehension that no laboratory has begun to describe its nature. In itself each cell is a chemical factory which surpasses all the skill of man. And it is not a detached unit of life. It submits to some ruling force which directs the operations of all the cells in a harmony. Some of them are directed to push into the ground with most ingenious energy; some build the transportation systems in the stalk and branches; some form a waterproof covering for the leaves, or set themselves up as gate-keepers for the breathing-holes, or form themselves into sugar factories. Here is an inconceivably intricate creature which has the power, unattainable by animals, of converting water and carbon into sugar by applying sunshine to them. The whole of this complicated organism was provided for, to every least detail, in that tiny pill of "matter" that seemed so unspiritual.

You take a mouthful of shad-roe on your fork, and notice that it is composed of round grains. Every grain, before it was cooked, contained the full provisions for a fish, composed of trillions of cells. That fact is stupendous enough. But it seems slight when you consider a further fact. That fish would have lived by certain instincts that are as far from matter as any philosopher's thinking. The fish would have been directed by an instinct to spend its winter in the ocean. An instinct would have driven it up a stream in the spring, and an instinct would have taught it to mate. The instincts cannot be the result of training or experience, for a fish does not receive any tuition in the ways of life, and its actions are unerringly right before it can learn by any experience. Somehow the knowledge of what to do—an utterly non-material emotion—is in it. Somehow, then, the knowledge must have been potentially in a material egg. The reasoner who thinks he can disentangle the matter from

the spirit in an egg will never gain much credence from either the scientists or the philosophers. He is a crude person who has no conception of the utter marvels amidst which his life is spent.

Anyone who thinks that the epithet "materialist" has any meaning nowadays is unimaginative, antiquated, dogmatic, and quarrelsome. He has no right to address a civilized audience. For the two substances in this world, the matter and the spirit, are no more than names. One is as truthful as the other, since neither has any meaning that the learned world can agree upon. Each is a profession of ignorance. All that rational men can agree upon is this: "We live in a flood of energy that makes impressions on our senses. We do not know anything about the energy. Energy by the name of spirit is not a bit more noble or refined than energy by the name of matter. If any person has accused science of being materialistic, he should be born again."

CHAPTER X

Probability

No word is so drab as *probability*. Our emotions cannot abide it. We must always know positively, must decide one way or the other, must act on the decisions. In every affair of life we are animated by passions, and these passions must attack or defend something. Every moment of civilized activity is some form of rivalry in which we must be loyal to one idea or hostile to another. The farther we trace our ancestry back through barbarous men and intelligent animals, the more constant do we find the daily struggle to secure food and shelter. All our evolution for millions of generations has implanted in us the necessity of contending for or against something. So we are bred by all heredity to take sides when an idea is proposed. We cannot remain neutral and weigh probabilities. We have to decide and fight.

Lee Wilson Dodd describes how impossible it is for men to keep their minds from deciding:

> It may be objected that a wise man will remain scrupulously open-minded or agnostic. . . . Through many years of self-flattery I supposed myself such a man. . . . But I was "kidding" myself. For life is something which has to be flowingly, unbrokenly lived, and every eddying impulse of life presents this same old choice of alternatives—Yea? or Nay?

We do well to realize that we are subject to impulse, driven far more than we know by the forces of pride and interest and prejudice. And probably there isn't much we can do to alter ourselves. Indeed I am not sure that it would be worth while, if it were possible, to convert our

souls into laboratory balances that weigh the pros and contras. Perhaps it is more fun to be human, to love and hate ideas.

All I am urging is that we can enjoy life more if we recognize, as Mr. Dodd does, that we are creatures of emotion who have very small power to keep our passions neutral in the presence of an idea. A man can be more at peace if he is not flattering himself that he is an impartial judge of his thoughts; he can lead a more civilized existence if he perceives that he is impelled by an inborn pugnacity.

When we look at ourselves in the mirror of Mr. Dodd's confession, we can see that he has not reported the full truth about the human mind. To some extent we can remain open-minded. If I ask him whether force is older than atoms, he will reply, "Oh, probably. But I don't know." If I ask him whether intelligence-tests are useful, he will answer, "Oh, they probably do some good." He does not know whether Mars is inhabited, whether Sacco and Vanzetti were guilty, whether the ancestors of man lived in trees. He can suspend judgment on such debated questions. In fact, he would be ashamed of himself if he could not remain open-minded. An educated gentleman is not entirely the slave of his eddying impulses. He escapes from a dozen of them. There are gentlemen who think it desirable to escape from four or five dozen impulses and to be master of their judgments to that greater extent. Some men can count as high as two hundred cases in which they are able—even against the pressure of emotion—to avoid saying yea or nay. They really can do this; they are not fooling themselves. They think they would improve their characters if they could conquer in another two hundred cases. It's all a matter of degree.

We need not assume that these emancipated persons are happier or that they are better citizens. I am not

holding them up as examples, nor exhorting my readers with any gospel. I am asking them to exercise a little curiosity about their minds, with a view to finding out how far they can escape from the impulses of passion. How far is it desirable to escape? For example, I suppose that every reader thinks it is ridiculous to be passionate about the snails in Sirius; he would not be so silly as to make a decision, but remains agnostic on the subject. Some readers could not feel that way about people on Mars. To them the evidence is strong; they have made up their minds; they believe. Many readers do not wish to remain open-minded about a personal God; they believe something. Quite right. But where do they draw the line in this long gamut of opposed opinions that stretches from snails to God? There is the purpose of this chapter: to inquire where you make the division-point on the scale of beliefs. Examine a scale of seven beliefs arranged in order of decreasing probability.

1. The most fundamental and most unanimous belief is that there is a world outside of us, different from our minds. Probably every man holds this belief. Yet we can conceive that it is false: possibly we are in some way parts of a uniform whole, so that there is no distinction between outside and inside—any more than there is an up and down in the universe. If some Einstein of the future calculates this probability and verifies it to the satisfaction of all scientists, educated men would accept it. Then they would look back on my twentieth-century dogmatism about "a world outside of me" as mere ignorance and illusion. Why should I say that I know there is an outside world? It seems more sensible to say: "I believe in it, but I am willing to give it up if evidence makes it dubious."

2. I have never met a man who was agnostic about the existence of a city named Honolulu on an island in the

Pacific Ocean. Though I have never been there, I believe in it. Yet if I tried to give the reasons for my belief, I should make a very poor showing as a logician. I accept Honolulu because I never heard of any reason for disbelieving. The probability of its existence is overpowering.

3. Did Alexander the Great really live and do what history says he did? He is immensely farther from certainty than Honolulu is; yet, since no historian disputes his career, I find the probability of it extremely strong. Still I should not care to fight for my belief if some competent historian attacked it. I could be somewhat open to adverse evidence.

4. Did the poet Homer really live? The probability seems to me that he did, but it is quite possible that he did not. I simply incline to the opinion that he did.

5. Did life originate out of lifeless matter? Probably a majority of modern biologists think that the probability of such an origin is strong. Any other explanation is harder to credit than this one. But this one is incredible to me. When the choice lies between two incredible explanations, I cannot adopt either. I am quite unable to vote yea or nay. It seems barbarous to have an opinion on the subject.

6. Is there a place of eternal suffering for sinful souls after death? Forty years ago the wisdom of the religious world in which I was brought up almost unanimously said yea. Hence I believed in hell. Now the wisdom of theology is divided on the subject; few of the leading Protestant ministers will declare from their pulpits that they believe in hell. So I cannot find any basis for belief. The probability grows increasingly strong that hell does not exist. All I can do is to try to be receptive if any new logic or fact is published in support of hell.

7. Does God reveal Himself visibly to the President of

the Mormon Church? Three-fourths of all church members in Utah believe that He does, and Senator Smoot records this belief in the *Britannica*. Therefore I am in no position to deny it. But most Protestant ministers deny it with assurance. The probability seems to me that they are correct in denying. I cannot know certainly; I can only try to judge of the balance of probabilities.

In the whole range of opinions that my mind pigeonholes I cannot find one that is absolute knowledge. Every one is a balance of probabilities. In some cases the balance is so overwhelmingly strong that I commonly say I believe; yet even in these cases I could feel some curiosity about new data offered against my belief. An example is the strong conviction I had in 1918 that the Germans were more guilty of the World War than any other nation. No doubt was discernible in my mind. I believed thoroughly in German guilt. Yet I was able to inspect the argument of the revisionists, could see a new possibility, and finally decided that the probability was against German guilt. I was not peculiar. Hundreds of thousands of educated minds were more open than mine and acted years before I did. So I do not see that I flatter myself about remaining agnostic. I haven't yet discovered that I am fooling myself. I value an open mind above any belief, and I work harder to increase the openness of my mind than for any other mental trait. I am afraid of "knowing in my marrow." I feel more respectable in proportion as I can learn to examine probabilities.

Yet the tendency to believe is powerful. I can amuse myself by watching my passionate brain maneuver to defend its favorite opinions. When my notion of German war guilt was first attacked, I could see my mind rush to arms. It instinctively prepared to defend itself. My pride was captain of the garrison and sounded the alarm. My mental resources were obedient soldiers and took

post on the walls to repel invaders. Pride was determined to preserve its citadel. Pride is a comical fellow, a blustering, brainless fighter. To be sure, he has been needed all down the ages of the struggle for existence, and today he is the strategist who secures place and power in a competitive world. We can never supplant him in practical life. But for this intellectual sport of "What Do You Know?" pride is like a bulldog at a chess-table.

In this game the only player who has skill is curiosity. Curiosity sees that the mind is forever in danger of checkmate if it does not pay close attention to the new moves which are being made by that crafty opponent, Things As They Are. The world is what it is. Our pride of reason cannot alter what is. We are defeated in every game unless we set curiosity to noticing what attack the world is making upon reason.

If a mind is commanded by pride, it supposes that of course other minds are fighting under the same blind leadership. A social uplifter, for example, will shout that his opponent "denies" the possibility of uplift. But the opponent has denied nothing. He is only wondering about the probability that a reformer can succeed. "What are the chances," he asks, "that you are clever enough to do good without doing more damage at the same time?" A preacher cries out against those hard minds that "refuse" to believe. But the minds are not refusing. They are considering probabilities. They are asking questions of this sort: "If you and your tribe believe, while an equally numerous and intelligent tribe do not believe, what are the chances that your faith has any foundation?" Probability seems not to favor the doctrine, and so the hard mind cannot accept it. There is no denial or refusal of belief; there is only inability to perceive any foundation for belief.

It is entertaining to see how dogmatic minds will as-

sume that other people are dogmatic. If I know in my heart that salvation depends on being able to rehearse the hundred and one names of God, I must inevitably take it for granted that a geologist feels the same way in his heart about a balanced rock. So I shall preach about the dogmatism of science and ridicule the faith that ancient glaciers deposited boulders at likely points. But the geologist will not know what I am talking about. He has no belief whatever. He is merely curious about how this piece of rock reached its present perch. He would attend to the hypothesis that balanced rocks are discarded playthings of the cherubim—if there were any likelihood that the theory could be verified. His glacial theory was fought out nearly a century ago, has been scrutinized and probed by every geologist in the world for half a century. It is not yet proved absolutely. It is simply the likeliest explanation that has been proposed. It will be abandoned promptly if a more probable theory is offered. The geologist accepts the glacial theory only because it is impossible for him to learn of any other plausible explanation in the light of present knowledge. He is no more dogmatic than the boy was when he adopted the theory that an old watch which he found in the woods was made by human hands.

A very common complaint against science is that it teaches that there is nothing but mechanism in the universe. Of course an assertive mind would naturally assume that science makes that assertion. But science does no such thing. It merely says that within its little field of operations it does not encounter anything but mechanism. If a scientist wonders what lies outside this field, he does not look to science for an answer. He may think the probability is that a personal God supervises natural laws every moment; or he may think the probability is that the mind has no way of finding an answer. But, as a scientist, he knows nothing, believes nothing, asserts

nothing. His suspense of judgment, so inconceivable to the positive mind, is interpreted as an assertion.

Since the philosophical mind seeks ultimate explanations, it must assume that all reasoners do the same. But most reasoners nowadays think that a search for the why of anything is a fool's errand. They have no hope of learning why anything is. They remain—they are compelled by every force in their intellects to remain—agnostic about what lies beyond their senses. No explanation is more than a balance of probabilities, and no probability seems to amount to much. Science cannot explain, and does not try to explain, anything. It simply codifies the relations that it observes between facts.

The suspense of judgment, since it does not hold out rosy hopes and blissful assurances, seems like pessimism to a mind that believes in gospels of good cheer. But a scientific thinker is not a pessimist. Judgments about the value of life cannot be made by science. If a man is healthy and successful, he will be an optimist, even if his creed is atheism. The unfortunate person is prone to pessimism, no matter how hopeful his beliefs may be. Pessimism is not the fruit of the mind that balances probabilities, but the result of misfortune or unhappy disposition.

Our simian mind, so clamorous and contentious, is happiest when it preaches optimism, when it expounds the incomprehensible, when it hurrahs for spiritual values, when it sets up sacred dogmas, when it asserts eternal truths, when it builds its glittering mansions of soul-stuff. These are the normal activities of the brain. They are no more unseemly than the rivalry of bucks or the squawking of gulls. To make fun of them would be mere bookish spleen. I have no dislike of them. In fact, I suspect that the life of knowing and feeling in the marrow is the life for which we are fated and from which we cannot escape.

But sometimes we can partially escape. We can step out of our natural world of affirming and fighting, can stand in a quiet place, and watch humanity at its noisy business of loving and hating ideas. Here we retreat from the hurly-burly of passionate human reason. We make a pastime of looking at the probability of ideas.

We do not deceive ourselves by supposing that we have found some new wisdom which is better than nature has evolved in our passionate reason. We are simply curious about this reason of ours. If a doctor of divinity tells us that he knows deep truths by his "whole personality," we are ready to hear the evidence. If William James tells us that he gets at truth by his "humane totality," we are interested to learn more about his kind of mentality. Possibly there is some avenue to a knowledge which does not depend on the groping verification that science uses. We wonder about the probability of this avenue.

We are not deceived by the way science sneers at mystic knowledge. Perhaps there is some certainty that does not come through the senses. Especially we decline to be frightened by the scientific argument that our souls are insignificant because they are less than a billion miles in diameter. How do we know that a galaxy of stars is larger than one human mind? We cannot know that a vast cloud of matter is more important than a mind because it seems larger. What has size to do with the question? Science has no proof that all the energy of a giant nebula is stronger than one human emotion on a planet. Science cannot discover whether the cosmos is indifferent or unfriendly or overwhelming.

It is more gratifying to believe that the cosmos is friendly, that it is a great drama, that man is playing it, that he is the only significant thing in the universe, that the audience is composed of enthusiastic archangels. "If there is more pleasure in believing this," says a friend,

"and if you don't know that it is untrue, why not believe?" I am receptive to this argument and want to be persuaded. But I am not able to believe anything just because I enjoy it. I am like a man who desires to believe in the Real Presence at the mass, but who is incapable of such faith. Some of us cannot select what pleases us and believe because we wish to. We can only say to alluring creeds: "You may be true; you cannot be denied. But I have no control over my beliefs. They depend upon the probability that grows in my mind."

How could the noble horses understand the human being who *selects* the faith that he likes? A theologian tells me that faith is what led Columbus to the great reality which we call the Western Hemisphere, and that in a similar way faith would lead me to religious reality. It is a pretty parable. Let us apply it to the sailors who accompanied Columbus. They had a faith, stronger than his, that they would come to the edge of the world and drop over. Since normal sailors, after years of exploring, were unable to verify this faith, it was given up as a delusion, and theologians make no reference to it. If Columbus had not found land, his faith would never have been mentioned by theologians. Faith has much more often led to delusion than to reality. Faith proves nothing until it is verified. If faith prompts me to a religious adventure (and "adventure" is the great word in modern preaching), I emulate Columbus and sail into the unknown. I find nothing there. Increasing thousands of religiously-minded people are reporting that they find nothing there. Other thousands report that they have found reality. Instead of the unanimous verification which all explorers have given to Columbus's faith during four centuries, we see a forty-per-cent. verification of religious faith during a hundred centuries. What is the probability in such a case?

Much of our emotional reasoning is based on logic. If I look through telescopes and microscopes at the orderliness of nature, if I study the beautiful adaptations in living creatures, and if I then ask how all the adjustments came about, I can arrive at only one answer—to wit, that the universe was designed by a mind. Logic can reach no other conclusion. Therefore a man is to be congratulated if he can accept it and rest in it. But history is strewn with equally logical conclusions that proved to be erroneous. Logic seems not to guarantee truth. What, then, is the probability that logic is right about the mind behind nature? I have no reason for disputing, but I cannot see any ground for asserting that I know.

Throughout the history of civilization mankind has supposed that his thinking made a difference in his knowledge of the universe. That is difficult to understand—if you stop to examine it. But there is no doubt of the fact. All the millions of volumes of theology have been based on the assumption that a man's thought modifies his knowledge of heaven or hell or purgatory or God. Especially in recent years has theology been animated by the notion that we are learning more and more about God by thinking more and more. *My Idea of God* is the title of a recent symposium by ministers and professors of divinity; the authors feel that they are arriving at knowledge by cultivating new ideas within their brains. Not one of them describes an encounter with a single new fact. All of them are remaking God by altering their minds. In theological literature there are only rare indications that the writers realize that the universe must be what it is, regardless of our thoughts. Theological thinking makes and unmakes God. There is now much greater discordance of opinion than ever there was before. What shall I judge of the probability that the thinking corresponds to any reality outside the brain?

Since the world has recently been steeped in theology, has been dominated by that type of thought, all reasoners seem to suppose—to a greater extent than they are aware—that their thought is important in itself. For example, I read Whitehead's description of the universe as an organism, and I feel just as I do when I read the book of Isaiah—a prophet is telling me what has been revealed to his deep soul. People are awestruck by Whitehead's revelation of ORGANISM. It is good form to be familiar with his picture of the cosmos and to stand uncovered before it. Possibly it deserves reverence—I am not passing any judgment. I am asking how this ORGANISM differs from theological thinking. Does it describe any new encounter with the universe, any new experience; or is it just another of the endless stream of imaginings that expect to alter knowledge by thinking about it?

The trend of thinking seems to be away from the method of altering knowledge by doing exercises in the brain. A majority of us, to be sure, still have a fondness for positive and prophetic utterances, like this of the sociologist Ellwood: "The scientific study of human life shows the possibility of remaking human nature." But the educated world is slowly learning to distrust that pompous kind of assertion. It is coming to prefer the form of statement that Father J. J. Williams makes about an opinion which is very dear to him and which will mean much for Catholic theology if it is ever verified: "We cannot postulate any degree of certitude for this theory. It must for the present remain a theory." Father Williams hopes that his conception of primitive religion will become more credible as time goes on. He is measuring truth by its gradually increasing credibility.

I wonder if there is any other rational way of estimating truth. It seems possible that men are going to abandon, for their intellectual operations, the pulpit-banging

pronouncements that "this is everlastingly true." Experience indicates more and more that men who talk like that are untrustworthy. We are finding that the safe guides merely suggest a theory as possible and ask the world to observe whether it grows more or less credible as the theory is assayed. It seems probable that human reason is tending toward this form of test.

If we look back through the history of opinions, we cannot find that any other test has been successful. Confident dictums about phrenology and spiritualism and cures for cancer are strewn like corpses on the shore of time; but every modest appeal to probability is still part of the intellectual life of the world.

Human reason has been unable to discover any standard of knowledge except increasing probability. If I had lived in 1500, when a few men in Italy were guessing that the earth moves around the sun, I should have called them wild-headed dreamers. Yet gradually through three centuries the probability of this strange theory increased until the learned world had to accept it. After four centuries it was still disputed by Fundamentalist orators like Uncle Jasper in Richmond, who preached that "The Sun Do Move." But now even this sort of opposition has almost ceased. The probability of the theory is overpowering, so that we may say we believe it.

But even unanimity is not an absolute guarantee of truth. In 1500 the whole learned world accepted the theory of witchcraft, and in 1700 only rare voices were raised against it. When the American Revolution was brewing, John Wesley declared that "giving up witchcraft is in effect giving up the Bible." Yet the theory gradually decreased in probability. The chances against its survival are strong. So if I had lived in 1700, I should have believed in witchcraft, and in 1900 I did not believe. My belief is determined by probability.

How can an observant man conceive of any other criterion? He must realize that the universe is what it is and that tons of weighty thinking will not make one gram of difference in the truth about matter or evolution or God. The only attitude he can take is to be curious about the universe, to examine opinions with curiosity, to distrust all magicians who solemnly affirm that they know what truth is. Solemn affirmation of the thinkings in a brain does not alter the universe by the least tittle. All that counts in exploring nature is some idea or fact which accords with all the rest that men can be unanimous about. All advance in knowledge has been made by weighing probabilities.

Many of us are not concerned with the advancement of knowledge. All that we care about is the pain or pleasure that knowledge brings. If Mr. Krutch, for instance, encounters a new idea about marriage, he is grieved; he weeps for the death of love. If Mr. Gamaliel Bradford meets Darwinism, he bewails the loss of heaven. We all tend, like these authors, to be sorrowful when a belief is undermined. But a Houyhnhnm would not understand this human despondency. "Why," he would ask, "do you whimper? If your former belief is false, why mourn for it? Surely you cannot value an untruth. If you cry when an illusion vanishes, you must be crying for a world that does not exist. You are lamenting because love and the universe are not something else. That is irrational, unmanly. All your wishes and all discoveries of illusion do not make the world one jot better or worse. The world is the way it is. Only a crooked soul could despond because the world was not made some other way."

What is the probability that the horse would be talking sense?

CHAPTER XI

THOBBERY

The human creature has two different ways of attacking questions that interest him—the *rational* and the *empirical.*

On the one hand, he goes through an internal process called *reasoning,* from which he draws conclusions. His ability to reason becomes his pride; his faith in it becomes absolute.

But on the other hand, he also *observes* and experiments. In experimentation he comes into a direct and original relation with the universe. . . . The distinctive work of science is the modification, the reconstruction, the abandonment of old ideas; the construction of new ones on the basis of observation. This, however, is a distressing operation, and many refuse to undergo it. . . .

The man of science must accept as the final word John Hunter's maxim: "Don't think; try." Thinking is an instrument, a very fallible instrument, for helping to decide what to try, but the last word must be *try.*

—H. S. Jennings, *The Biological Basis of Human Nature.*

WHEN we have to make a judgment in practical affairs, we estimate probabilities. The man who is thinking of buying a hundred-acre farm reviews in his mind all the knowledge he has of real estate in that region, asking questions like these: What was the property worth ten years ago, fifteen years ago? What about property values generally in this neighborhood? What shrewd opinions can I gather from experienced friends as to what has caused the steady change in value? How great a loss might I suffer if the real-estate market turned very unfavorable?

If you are debating the purchase of a farm and if the loss of ten per cent. of the price would be a calamity to you, you do not consult a learned and logical treatise on the theory of values in general. You probe for bits of actual knowledge about this particular farm; you are anxious for exact information about other similar farms. You are skeptical of any advice that is based on economic

theory. Your strongest desire is for ideas that can be verified in the specific market where you are trading. You do not apply your reason to searching out how the market must be by metaphysical considerations, but you strive to see how the market actually is—in all its illogical and dangerous possibilities.

In short, while you are exercising your wits about the market, you are *curious*. It will not do, now, to let your wishes enter into the debate. It is no use to spin logic or be enraptured by beautiful syllogisms. Here before you are two possibilities—that the farm will increase in value, that it will not increase in value. One of these opposites is as important to you as the other. So you do not have any will to believe one or the other. You are dominated by sheer *curiosity* to find out whether one possibility is more likely than the other. The conviction that you will lose by the investment is just as valuable as the conviction that you will profit. You are not prejudiced, but *curious*.

Compare this balanced and curious frame of mind with the attitude of a man who is arguing about hell. Have you ever seen a discussion of that subject that was animated by curiosity? I never have. In my boyhood the question was very much alive. Bob Ingersoll had decided that hell was a horrible fancy, and he delivered scathing orations against it. Some of the clergy felt that all true religion was endangered if people lost the belief in a literal and physical hell; they therefore preached violent orations in favor of it. Another portion of the clergy had reached—I never could learn how—the conviction that a physical hell was a superstition, but that a belief in some sort of mental hell was necessary to true religion; so they delivered winsome orations in favor of a state of everlasting spiritual unpleasantness. All speakers on the subject had reached a conviction by some process that

they were unconscious of. None of them ever tried to explain that process in such terms that the curiosity of a congregation could be satisfied. Their instincts taught them, quite truly, that congregations have no curiosity. An audience wants to hear stalwart assurance declared with impressive solemnity. The reasoners about hell had apparently never felt any curiosity. They just poured forth the everlasting truth that had been revealed to their inner spirit.

If I describe to a modern sophomore this disputation about hell, he merely yawns. Hell is, to him, nothing but a conception that used to be of interest to those quaint people of the ancient 'nineties. He has not the slightest respect for their sermons on the subject. He cannot conceive that such antiquated logic illustrates anything that goes on in the intellectual world of today. He supposes—it is an axiom of all classroom discussion in his university—that the human race has now lifted itself out of superstition. He assumes that we are emancipated by science and are freed from all old-fashioned preachments that were based on imagination. Yes, sirree! In this clear daylight of 1931 we can laugh at the dark terrors that possessed the foolish human brain as it was in 1890.

A great swarm of present-day reasoners about social conditions are as guileless as the sophomore. They base huge pyramids of logic on the assumption that their "rigorous scientific procedure" has preserved them from error—never pausing to question whether their kind of science may not be as sheerly imaginative as the rigorous logical processes that guaranteed all sorts of hells forty years ago. Yet it is quite possible—as many university professors believe—that the "techniques" and "procedures" in modern schools of education are as benighted a superstition as Dante's "Inferno."

Look back beyond 1890 to 1850, to 1800, to 1700, to

1400, and on to 2000 B. C. All the way back through the centuries this same human brain, quite as powerful as it is now, was erecting its pride and its passionate logic into imposing towers of reason that all the intellectuals bowed down to. You cannot draw any line between the progressive theology of 1890 and the more literal theology of 1800. You cannot show that in any decade between 1800 and 1700 the mind of man adopted different standards of truth. No historian would contend that mental processes were reformed anywhere between 1700 and 1492. As far as a sophomore can see back of 1890, human reason was always the same: most of its operations were pretentious displays by minds that felt no curiosity to have their results verified.

Why should we suppose that a sophomore of 1990, looking back sixty years to our decade of social reforms and magical "creative" efforts in education, will not find us as much deceived by our pet mythologies as mankind has always been? There is only one reasonable hope about our age—that, as a matter of degree, we have improved somewhat, that we are to some extent more curious, slightly more concerned that our thoughts shall be verifiable by future ages. It now seems in retrospect that the learned men of 1900 could act somewhat more like noble horses than the men of 1800 could. Perhaps our universities are gradually coming to test ideas more on the basis of their probability. But predominantly our intellects still seem to be animated, as they have forever been, by the love of battle and the pride of "constructive" argument.

At any rate, even if we are much less superstitious than I fear, it is worth any man's while to put himself on guard against the lust of his intellect. For it is possible—it seems rather probable—that our modern way of discussing capitalism and democracy is just as blind and

ferocious as the preachments about infant damnation used to be. The curious mind will not jump to this conclusion, nor will it jump to a denial. It will be interested to inquire about the probability. There can be no more fascinating puzzle than to try to discover whether we think better now than we did five hundred years ago. To be sure, the suspicion that our social gospels are of the same stuff as the doctrine of hell seems gruesome to most persons at first sight, too terrifying to be credited. But we need not fear it. We are only examining it to see how probable it appears. It is endlessly diverting.

In this investigation we can help ourselves to be more concrete, and can save time, if we adopt some word to describe the usual passionate kind of reasoning that our simian instinct has always preferred. If we use any familiar word—such as "passionate reason" or "wishful thinking" or "mere logic" or "dogmatizing"—we are in danger of befogging the issues, since every such term carries with it a cloud of prejudice. For instance, if you have been accustomed to putting a high value on reason, you resent the use of the word *reason* in a derogatory sense. The same is true of the verb *think*. And no unpleasant verb like *rationalize* can get a fair hearing. We need a word that does not suggest any previous like or dislike in our mind, one that is merely descriptive of the prevailing fact in human efforts to think.

The prevailing fact is that most thinking has been a logical effort to prove some idea which had already made its home in the mind. For example, modern philosophers find that Kant's impressive argument about The Moral Imperative was nothing but an elaboration of a certain bit of religious dogma which "had been unaccountably embedded in the old man's mind." Or, for another example, when Hobbes and Rousseau tell us opposite convictions about man's soul in a state of nature, we can

only admit that one of them was making a philosophical support for an idea which was abiding in his mind long before he began to philosophize. The great body of logical thought has been a passionate defense of opinions that were firmly believed before any thinking was done. That statement is not a fling at philosophy; it is a report of what the philosophers themselves have declared. Most of the human efforts to reason have been passionate *thoughts* about *opinions* that were *believed* before the reasoning began.

So I propose that we put together the initials of those three words to coin the verb that we need—"thob." From this we make the useful noun "thobbery." There may not be anything wrong or ludicrous about thobbery. The name is not an epithet. It is a colorless word, not connoting a good or a bad quality, which may stand for the greatest fact in the intellectual life—namely: most of our intellectual work is an effort to defend by logic something that seems a mere opinion to many good reasoners. *Thobbery is the confident reasoning of a person who is not curious about verifying his result.*

An excellent illustration of thobbery can be seen in a recent little book entitled *What Is Hell?*, by twelve eminent persons who were chosen for their power to think straight and their sensitiveness to spiritual matters. The Catholic view is presented by the Rev. Abbot Butler. He admits that the doctrine of hell is "the most difficult of Christian dogmas, a great and appalling mystery." And from this preliminary statement he proceeds through his essay with flawless reasoning. "There can be nothing new," he says, "in a statement of the teaching of the Catholic Church on Hell. There is no room for modern speculations." He then sets forth that teaching. "The Church," he explains, "authenticates no private revelation." Calvin's private

thoughts about hell are rejected as horrible; and the various imaginings of modern liberal Protestants are not considered worthy of mention. All that signifies is the one indisputable authority of the truth which the Church teaches. Such reasoning is clear and consistent. It is impregnable, because it is verified from the start by the only standard of knowledge that the reasoner recognizes—the revelation made by God in the Bible to the Catholic Church. Outside of this revelation there can be nothing but individual opinions that can never be verified. So Father Butler's statement about hell is not thobbery. For it is not confident personal thinking which tries to verify itself by its own logic; it is the acceptance of a dogma that is undisputed within the realm where Father Butler thinks.

What a contrast to him is Dean Inge! The Dean begins with "the two grounds which have led mankind to believe in a future life: (1) beliefs and fancies that have their source in primitive animism, (2) beliefs which arise out of an ethical demand for justice." So the belief in hell is based on two beliefs which are so frail that they cannot stand upright in modern discussion of sociology or psychology. The Dean explains that the Greeks had only a very faint belief in survival after death and that Christ himself revealed hardly anything on the subject. He goes on to confess that we cannot think of hell as a place at all. Yet he says, "We know that there is a hell." Also he calls hell a horrible nightmare, hints ambiguously at symbolism, and finally defines hell as "the shadow of a soul on fire." He shows no curiosity about the probability of the existence of this eternal torment. He assumes, with severe contempt, that the Catholic dogma is a fable. He does not tell us a word about how or when his own Church received from God a revelation that its former teaching was a mistake. Yet this is the heart of the whole discus-

sion. Eighty years ago the Church of England knew that hell was a place, a real one, in which there were real torments; now some of its clergy have no such knowledge. By what reasoning or intuition was this immense body of knowledge destroyed? What likelihood is there that any present knowledge of the Church of England will be standing fifty years hence? Dean Inge's ambiguous toying with a great belief shows not the slightest interest in verifying any past or present or future religious faith. It aimlessly relies on exhibiting some hazy thoughts. It is sheer thobbery—unless, perhaps, it is sheer pretense.

The test of such thobbery is not what you or I think about theological reasoning, for we may be outside the bounds where it can be understood. The test is what other theologians think. Many bishops of Dean Inge's Church consider that his reasoning is no more than a little balloon set afloat in competition with other scientific gas-bags that will burst before the day is over. They think that the Dean's argument is private emotionalism. Some divinity-school faculties would vote almost unanimously that even the remnant of a symbolic hell which the Dean venerates is just a rubbishy relic of antiquity that only superstition can tolerate. So we might continue through the arena of modern theology and discover that every conception of hell appears ridiculous to a majority of those who think about this matter. What is the mental condition of a rational person who seriously expounds a notion of hell to a body of his equals who feel sure that he is wasting his time?

It is likely that you are giving a contemptuous answer to the question: you may think that men who exercise their intellects on hell are silly antiquarians; you may think that they live in a religious cave and do not count as examples of human thinking in this age of enlightenment. If that were true, I should never waste a para-

graph on them. But it is not true. The men who profoundly reason about hell have vigorous minds, have wide knowledge of the history of reasoning; they are quite up to the mental level of those university professors who laugh at them. And they are truly typical of all human efforts to think straight in this fourth decade of the twentieth century. They are oblivious to that great body of opinion which considers them futile: so are the neo-humanists. They have no curiosity—that is, no feeling that one discovery about a doctrine of hell would be as pleasant as its opposite: neither have the "creative" educationists. They do not realize that all thought is futile unless it is simply preparing for verification: neither do the scholars who propose that science must create a new God. The reasoners about hell are fair samples of all the host of thobbers.

The most mysterious activity under heaven is this kind of thinking out what hell is, getting up ideas of what God is, excogitating the nature of education, opining what a democracy is, believing what religion will do to war, assuming that one social class is more honest and kind than another class, telling the world "my thought" about the universe. Men are not interested in "my thought" about radio-transmission; all they care about is my report of something that any competent experimenter can do with radio. Why, then, are they interested in "my thought" about how to inspire children in school? For my opinion is worth no more about education than it is about Hertzian waves. Yet the fact is that men will give respectful attention to sheer imaginings about educational or social subjects. They accept the mental images as a sort of reality which ought to be enshrined and worshiped. Though they scorn mere thoughts about road-building, they cultivate utter thobbery about college-entrance examinations or heaven.

Road-building and social engineering are parts of the same world. Why should thobbery be completely taboo in one enterprise and revered in the other? It would seem to a Houyhnhnm that our only interest in reasoning should be to suggest possibilities which might be checked up in practice. It would seem that nothing but verification ought to signify in all mental undertakings. But we simians don't understand such a judgment. We acquire merit by spinning bright thobberies, and we call men horrid materialists if they distrust unverified reason. It would seem natural that all our efforts should be a curious search to find out how the universe is. Not at all. Nine-tenths of our intellectual endeavors are to manufacture pictures of how we "think" the universe is.

When the human mind has formed a notion of some phase of the universe, that notion takes on the appearance of a solid reality. Jonathan Edwards, for example, painted in his brain a picture of an angry God plunging sinners into eternal torture. His brain reasoned with acuteness and clarity. Yet it had no doubt that its picture was a reality. It felt no curiosity to examine its conviction, no doubt of its correctness, no necessity of being verified by all other competent brains. Jonathan Edwards just knew in the marrow of his being that he was right. So he preached his vision as actual knowledge. Today his splendid intellect is remembered only as the silly thing that produced infernal thobbery.

For my part, I cannot see the difference between Edwards and the modern Educationist who has formed a mental image of the pedagogical deity called SELF-EXPRESSION. The Educationist vividly sees this Beneficent Spirit infused into all classrooms, sees IT transforming teachers into inspirational guides, sees IT translating pupils into glorified socially-minded souls. He knows of a surety throughout his whole being that

SELF-EXPRESSION actually elevates schools into this beatific condition. He is as confident of his educational God as Jonathan Edwards was of his angry one; he feels no more curiosity than Edwards did about being verified. He has no interest in the fact that three-fourths of the educators in the world think he is as unreliable as Edwards. He is merely sorry for the blindness of the moss-back conservatives who do not bow down to his new divinity. And when he has been dead for a century, his splendid intellect will be remembered only as—well, I wonder how the best minds of 2031 will regard it.

Of course the Educationist may be perceiving a fact. He may be more like a Newton than an Edwards. Though my personal guess is against his theory, I recognize that it might prove to be a revolutionary truth. So I am not presuming to deny his theory. Neither do I deny Edwards's theory of an angry God. I class the two men together because they show no curiosity, because they are completely confident in their reasoning, because they do not humbly ask—as Darwin and Einstein did—to be verified.

It is their absolute arrogance that makes them akin. No quality of the human mind is so mysterious and so appalling as this indifference to the power of other minds. Dean Inge, for example, has not the slightest respect for the whole body of Christian thought about hell during eighteen centuries. In the world today there are ten thousand Catholic reasoners, as well qualified as he is, who know of a surety with all their minds and hearts that hell exists and is a place of eternal punishment; yet the Dean dismisses this body of Catholic reasoning with a snap of his finger. Ten thousand Protestant reasoners confute him out of the very Bible and the very mental processes to which he appeals, but he smiles at them as if they were so many blind babes in a hospital where

he was the master surgeon. The Educationist despises all the wisdom of fifty centuries of teaching as if previous pedagogues had been cripples and he was the athletic director who had the magic recipe to make them fleet runners. An advocate of trial marriage has no more respect for a hundred million opposing thinkers than if they were grasshoppers and he was driving an armored tank through them. It is this arrogant disregard of all opposing thought that distinguishes thobbery. It is this arrogance which typifies the ordinary action of the simian brain. No other trait of our mind is so incomprehensible and so monstrous.

Perhaps I am making the common mistake of giving harsh names to human thought. If we are by nature equipped with a thobbery apparatus instead of a rational mind, then that is the way we are. It is probably wrong to find fault with ourselves for not being a different sort of animal. If we are passionate, let's make the best of our mental outfit. It is what it is. We need not repine because we were born without grace and good sense. We must accept the fact that we are what we are. We can enjoy investigating the queer operations of the human brain. Life is pleasanter when we have seen that our so-called thinking is merely a defense of our emotions.

I am sure that the lives of all young people in college would be very much happier if they understood what is meant when a professor advises them to learn "to think clearly." That is an amusing piece of advice. The humor of it was illustrated on Sunday, June 15, 1930, when the presidents of Yale, Princeton, and Dartmouth preached baccalaureate sermons to their graduating classes. "We crave most of all," said President Hopkins, "that you shall have the ability and the will for reflective thought and clear thinking." He declared that most undergraduates come to college without any acquaintanceship

with what religion really is and that Dartmouth had tried to teach them how to think straight to an understanding and an assurance. President Hibben of Princeton warned his seniors thus: "There is a very pressing problem that every one of you should attempt to solve. That is the origin of religious conviction." He cautioned them that religion must not be merely accepted, but must have "the confirmation of one's own thinking." And President Angell of Yale described "the chorus of atheistic propaganda in which even college professors join," and encouraged the young men "to know, to weigh, to discover for themselves, and to be keen to experiment."

Imagine that you are a member of a graduating class and that you conscientiously try to live up to this exhortation. Suppose you are a Catholic. You know that the president of your college is dead wrong, ineffably wrong—for you know that your Church does not authenticate any private thinking about religion, much less any discovering of religious convictions. You know that religious truth can be had only by accepting the wisdom that is superior to private thobberies.

Suppose that you have admired during your junior and senior years one of those irreligious professors. Then you must infer that your favorite teacher cannot think clearly. Or else you must infer that the president of your college doesn't know how to think. There is no escaping this dilemma. What must a modest young man do?

Or suppose that a wise college preacher has taught you that the intellect cannot apprehend religious truth. He seems to have declared a precious fact, because all about you in the educated world there are the finest kinds of straight thinkers who reach opposite conclusions about God and the soul. Surely you would have to admit that your president's advice was worse than erroneous. For

clear thinking can take you either to religion or away from it.

You may have heard from another influential college preacher that religious questions should be left to "experts in religion." That seems excellent advice. How can a young man possibly decide questions which the professors differ about? Thus you find that the president's exhortation to think clearly is only an invitation to enlist in one or the other of two hostile armies. Both armies fight under the banner of Clear Thinking.

Again, you have heard of university presidents who think that this religious president of yours is just an unenlightened follower of superstition. How can you, a mere senior, hope for thought so clear and straight that it will reveal what your president is unable to see?

Every senior is within his rights if he asks, in all modest seriousness: "What, Mr. President, is the use of thinking? Why not help us by warning us of the futility of thinking? Why not tell us to remain curious and to watch for any signs of verification of any religious idea?"

It seems to me that an inspiring baccalaureate sermon could be made out of the thinking of H. G. Wells about the World War. In August, 1914, he was carried away in the rush of wild emotions produced by the declaration of war on Germany. He was in an intellectual fury of clear thinking about the issues of war, straight thinking about the objectives, profound reasoning about righteousness:*

All the realities of this war are things of the mind.... We fight to destroy a nest of evil ideas. . . . We fight because a whole nation has become obsessed by pride, by

*The story is told by Irene Cooper Willis in *England's Holy War*, quoted by Harry Elmer Barnes in *World Politics*.

cynicism and vanity, by evil suggestions, by base cunning and treachery.... Until the mind of Germany is changed, there can be no safe peace on earth.

So Wells thought and piously opined and fervently believed in August, 1914. Then came the dreadful four years of British propaganda, the dreadful hypocrisy of the peace of Versailles, the cold search for facts after 1920, the repudiation by English and French and American historians of every item of Wells's passionate outpourings about the sacredness of the English cause. *He then examined the evidence.* He removed from his mind all the passion of his reason and forced himself to find out what ideas could be verified. The result was that he threw overboard his notions of 1914 and substituted for them the unattractive probability that Germany had been no more guilty than his own country.

Wells did not know in his marrow that Germany was guilty. He does not now know in his intellect that she was innocent. He cannot yet *know* by any amount of research and thinking where the guilt lies. He continues to search for the probability. Such a course is the opposite of passionate reason, of determined thobbery. It does not deviate into the kind of straight thinking which is the most tortuous of all mental processes. It leads to those happy regions where the mind works in serenity and dignity.

PART TWO
SOME OF THE CASTLES THEY BUILD

CHAPTER XII

God

I. The Nine Ways to God

If an anthropologist came from Orion to study the human race, he would find our belief in God a more enthralling subject of investigation than all the rest of our intellectual works. If he was sympathetic and persevering, if he read a thousand books on theology and talked with a thousand university professors and listened to a thousand sermons addressed to undergraduates, he would finally be able to codify the different ways in which we attain a knowledge of God. He would find nine principal routes by which the human soul travels to this most important of its beliefs. Of course the routes cross one another and are not always distinguishable. Most believers follow two or three roads at the same time, and no map can show all the details of the interlacing and coinciding. But nine highways to belief can be charted with tolerable distinctness. I will describe each of them.

1. THE WAY OF REVEALED DOGMA

This is the only way that lies open—broad and straight—from ignorance to a direct knowledge of a personal God. It is the way of the Catholic Church. Before 1800 it was the way of most Protestant teaching. Even today it is the route actually taken by a majority of church members, though theoretically they suppose they are on routes 2 or 3 or 4. The pilgrims on this straight road have no inner light, no compass in their own psyches; about them and behind them all is darkness and impenetrable morass. But before them shines the beacon

of Revelation. God has revealed himself in the Bible, and the Bible is understood by certain officials of the Church who explain the revelation. A pilgrim who follows their guidance does not need any intuition or reason. He simply keeps his eye on the beacon of revelation and proceeds straight to Heaven, where God reigns.

Route 1 is clear and beautiful. A child can follow it, and the most learned adult need not desire a better one. If we had been content with this one sure approach to God, no visitor from a distant constellation would have any trouble in recognizing our wisdom.

2. THE WAY OF INDIVIDUAL FAITH

The man from Orion would be astonished when he first detected the utter difference between routes 1 and 2. For each is a way of faith; and faith, he would suppose, is the same wherever it is found. But route 1 is a faith in the knowledge which the Church has. It is the Church that lights our steps and assures us of our whereabouts in a bewildering world. Route 2 is *a faith in ourselves.* "He that hath light within his own clear breast," sang the great Protestant poet Milton, putting the words into the mouth of the philosophical Elder Brother, whose sister is lost "in the blind mazes of this tangled wood." Milton scorned the guidance of a corrupt Catholic Church and denied that its pope or cardinals or bishops had any religious light. It was the essence of the Reformation that it revolted from faith in an institution and declared its faith in the revelation that comes to each person privately. The momentousness of this revolt was not realized at the time by the rebels, and is not yet realized by Protestant theologians. But the man from Orion would apprehend it at once.

Route 2 is an infinite number of private trails, each trail being surveyed by the particular faith that operates

in each man's breast. To a Catholic they seem a sheer blind maze of wayward tracks, but to each devout Protestant his own clear light sheds an assured radiance on his personal path to God. I wonder what all these paths would look like to the man from Orion. He would, for example, read the words of the Rev. H. R. Mackintosh:

Religious knowledge means that knowledge of spiritual reality, and supremely of God, which we have through faith. Faith claims uncompromisingly to possess a real knowledge of its object. It is sure that it is not merely on the pathway to reality, but has actually come in contact with the last and highest reality in the universe. . . .

All religious knowledge of God comes by revelation. . . . Revelation is supernatural; it is something which neither nature nor humanity can in the least explain. . . .

We Christians are wholly at variance with the vast majority of mankind. It is not merely that they fail to see what we see; they deny outright that what we think we see is there.

Perhaps the man from Orion would have such a supernatural sort of mind that he could understand that faith. Perhaps he could perceive how a few people can know by faith that they tread an actual pathway which is not even visible to most people. If he could, and if there were any way of explaining this divination to me, I would trade my worthless intellect for it. I would gladly throw away this wretched mentality of mine if I could have in its place a faith that I could not doubt—such an absolute assurance as R. Gordon Milburn's:

Religion today stands apart, outside the system of general culture, in a world of its own, the reality of which is, for increasing numbers of people, becoming more and more dubious. . . .

The spirit of religion is immediately conscious of its

own inherent rightness, of the intrinsic superiority of Spirit to Nature, of the greater depth and reality of a life of faith. . . . We are blind to the supernatural on principle; we cannot see it, however much it may be there. . . . The apprehension of what really is the highest truth is possible only through the abandonment of oneself to what really are illusions.

How glorious must be the life of a man who directly sees the greatest truth (hidden from an *increasing* number of his fellow-beings), which shines upon him when he yields to illusions. For this truth is going to prevail with all rational men some time, Mr. Milburn believes, since he says: "Knowledge does not count as knowledge until it is recognized by the cultural tradition of the day." So, you see, he accepts the standard of science for verifying his truth—that it shall be undisputed by the general body of competent observers. At present his religion is unacceptable to the culture of the day, increasingly unacceptable, but tomorrow it will be accepted.

The anthropologist who could understand that would be faced with a gruesome sight. He would have to behold ninety-nine per cent. of the teachers of Christendom leading all the youth of today along roads that end in blank error and darkness. Our human paths to God are like a map in dreamland, on which every thoroughfare is the correct one, while all lead different ways, and all are wrong by a majority vote of the surveyors.

3. THE WAY OF EXPERIENCE

The most-traveled route nowadays among Protestants is personal experience, like Eddington's. Among our progressive theologians it is a veritable avenue, thronged by all sorts of intellectual and mystical people. A fair sample of experience in modern religion is a sermon by Bishop J. F. Berry of the Methodist Church:

They say this is a scientific era. It is an era when the principles of science are being applied to everything. I like that. These scientific principles hold equally true in the judgment of religion. A man who has had no experimental knowledge of religion through faith has no right to have an opinion if that opinion be contrary to the religious convictions of those who have actually experienced the presence of God through faith. One man's ignorance must not be put up against another man's knowledge. Scientists should not question our knowledge of eternal truths.

The logic is obvious and inescapable: if I have experienced something, then I have knowledge of it; and my knowledge is just as indisputable as any set of scientific facts. The Rev. Harry Emerson Fosdick is a leading expounder of the argument. When he was questioned about his "authority" at a religious symposium for students at Columbia, he retorted that there was no authority in his religion: "Nobody can dictate to me. No association can tell me what to believe. My authority is that of science—experience."

He developed the idea at length in a *Harper's* article called "What Is Religion?" in which he reiterated the word *experience* thirty-one times, to drive it home. I quote numbers 2, 13, 22, and 23.

Religion, at its fountain-head, is an individual, psychological experience. . . . No one who has followed the work of religious psychology from James to Starbuck and Coe will doubt the reality of such experiences. They are not matters of faith, but of fact. . . . We find God very near at hand and visibly operative. Consider the experience whose individual aspects we have been discussing—a life carried out of itself by something greater than itself. That experience is not merely individual; it is racial. Something greater than humanity has laid hold upon humanity.

So God is completely proved by the individual experiences, and the host of theology moves along the broad avenue.

But J. Middleton Murry's very penetrating examination of his own experience results in this negative:

> God does not exist: but we shall never be able to do without Him unless we know in ourselves the reason why He was created.

Mr. Murry pays the most reverent tribute to the majesty of the Christian faith, but he expressly warns his readers that his intuition of an "all-pervading unity" is not in any sense a belief in God.

His abstruse reasoning arrives at the same blank that increasing multitudes are reaching. He finds in his soul no experience of God. If a thousand professors of divinity feel certain of this experience, and if a thousand professors of other subjects feel nothing whatever, how shall I tell whether the avenue of experience leads from anywhere to anywhere else? I wish I could know what the man from Orion would discover about its beginning and ending.

4. THE WAY OF CLEAR THINKING

You will search the libraries in vain for any consensus of opinion as to how we ought to *think* in religious matters. The nearest approach to agreement would be something like this: "Think just as hard and straight and clearly as you can; don't suppose, however, that your intellect alone can attain God; you must be willing to believe and must cultivate faith. If your thinking does not reveal God, then there is something wrong with it. But if your thinking does arrive at God, you will know that you have been thinking clearly." Such advice, anyhow, was what I used to receive in my youth. I was always

taught that wise reasoning led to God, and that reasoning which led away from God was unwise. If my own thinking failed to find God, I was told that I was misled by the pride of my intellect. It was as if I had been set to working a problem in theological algebra: if I got the result that was given in the answer-book, I was correct; but if my answer had a minus sign before it, it showed that I had thought crookedly.

The students who heard presidents Angell, Hopkins, and Hibben must have felt just as I used to. For it was obvious in all the baccalaureate sermons that the presidents were directing the young men to God, were exhorting them to realize that clear thinking must reach God and that only crooked thinking could get a negative result. Yet this kind of test is never allowed in other subjects. The only standard of right thinking in college classes is that the result shall agree with the unanimous judgment of all competent reasoners. In the case of God half the faculty reach a positive answer and the other half a negative answer.* There is no test of correctness. By any test that fits all practical judgments, thinking which fails to arrive at God is just as straight as the thinking which does arrive. How do conscientious students feel about this advice to "think clearly" in religion? What estimate do they make of a president who gives the advice?

One hint at an answer was given recently in a *Yale News* editorial:

*This statement about "half the faculty" is not vague, but refers to the statistics of Prof. James H. Leuba (in *The Belief in God and Immortality*), collected before 1916. The statistics were difficult to obtain because "belief in God" is such an undefined mental attitude and because men do not like to respond to a questionnaire on the subject. More recent statistics would be of the greatest usefulness, but have not been gathered. There is some reason for guessing that not more than a fourth of the average university faculty now have the conviction that was called "belief" in 1900.

Scholarship has become associated with the rejection of religious beliefs. . . . Christianity does not make a strong enough appeal to the mind of today to draw it to itself.

Another hint is in a report of the Education Committee of the Harvard Student Council:

Organized religion has ceased to command the allegiance of a large number of students.

A third hint is the question that Mr. Gregg asked three years ago in the *North American Review:*

What about students, scientists, and thinkers in general, especially the more distinguished? Do they have any religious belief at all?

Suppose that questions from the audience were in order after a baccalaureate sermon, and that a puzzled Yale senior had inquired thus: "You tell us, Dr. Angell, that we should think clearly about God. Now there is no university in Christendom (except the Catholic institutions) that does not have on its faculty professors who cannot by all their reasoning find out God. Do universities employ so many wrong thinkers, or is it useless to think about God?" The answer to one or the other of these questions must be yes, and the answer makes every rational student marvel that his president advises him to think clearly about the Deity.

Students would be excusable for feeling that it is dangerous to think about God, that it is safer to follow the Rev. J. V. Moldenhawer and say:

Belief is not a question of intelligence. It depends more on a turn of mind. . . . Any man has a right to believe anything he needs to believe in order to keep his

life steady. . . . The modern concepts of God are imitations and substitutes for the Scriptural God, and as such come perilously close to zero.

That way of talking seems to fit the truth much more nearly than urging us to think. Thinking has originated all the wrong doctrines.

It is likely that a majority of Christians, even today, would agree with the Rev. John W. Ham in advising us *not* to think about God:

What we need is something that defies explanation. Religion is deeper than psychology, and the attempt to bring religion under mind is satanic in its origin.

Certainly it is a fair guess that the efforts of young people to exercise their minds on religion have made more infidelity than belief. It would seem possible that baccalaureate preachers ought to tell seniors how poisonous thought is when applied to God. It may well be that we are just fooling ourselves when we trust to reason for religion. Quite likely Dr. Valentine is right when he solemnly affirms that "philosophy can find no place in reality for the God of Christian worship." If all the enginery of philosophy cannot discover God, there is small use in setting the lone brain of a college senior to exploring.

The *Nation* once began an editorial with this sentence: "Religion, by definition, lies beyond the border of rationalism." This was not a theorem which the editor was setting out to prove; it was the preliminary definition which he supposed is generally accepted in learned circles. How strange it is, then, for university presidents to incite their graduates to attack religious problems rationally. The definition is very generally accepted in scholarly and literary essays. For example, Cabell has

written: "If religion be founded upon any truth whatever, that truth is, *self-confessedly,* not amenable to human reason. The rationalist, when he applies his common sense to religion, reminds me of a man attempting to measure distances with a thermometer." Mr. Cabell would therefore consider that President Angell is urging students to a nonsensical task.

That brilliant thinker Eddington agrees with Cabell. When he speaks of the religious revelations in his consciousness, he says, "Here reasoning fails altogether." The academic world sorely needs an essay by Eddington on the topic "Can Real Thinkers Think about God?"

The effort to think about God amazes me more each year I live. In every other field of mentality we find that we gain no new knowledge except by investigating new facts—facts out there in the world beyond us, facts to which we fight our way by ingenious inference or guessing or experimenting. But theologians do not tell me of new encounters with God. They all tell of "growing conceptions." These conceptions spring up inside the investigating mind. Each of them is accepted by some thinkers and rejected by more. In the past forty years the new conceptions have succeeded each other like new bill-boards on a turnpike; and, like the bill-boards, they grow quickly dim and draggled. No one cared in 1910 for the growing conceptions of 1890; no one cares now for the washed-out mental pictures of 1910. Nor has this fading of pictures any least resemblance to the way in which scientific theories grow out of each other, rooting in the preceding theories, and forming with them a continuous growth in a knowledge that is sanctioned only when all investigators agree. Science grows like a tree. Changing conceptions of God spring full-formed from thinkers, glisten for a time with independent colors, and then fade into blurs at which the next decade of thinkers

merely smile. Thinking about God is such an emotional and flickering process that my mind feels dizzy if I watch it long or intently.

One little illustration of the mystery can indicate the entire nature of it: That greatest of European philosophers, Kant, discovered, by thinking, that God cannot be found in human experience; yet nine-tenths of modern Protestant theologians now discover, by thinking, that our only knowledge of God comes from experience. Let us turn to something less bewildering.

5. THE WAY OF SCIENCE

At first glance you would suppose that this route is practically the same as route 4; and indeed they do have a common beginning, and they do for a time run together. But soon they diverge. When we have followed the way of science a short distance from the fork, we see that our backs are turned to the way of thinking. For thought can always be controlled. If our emotions and prepossessions are strong enough, clear thinking will obligingly wind about to any kind of personal God that we prefer. But the way of science is level and grim and direct; it tunnels through the mountains and fills the valleys. It is a railroad. You cannot walk upon it or drive your own car upon it. You must take the train, the Verification Special, and you cannot jump off while the train is in motion. You have to wait and see what the destination is. You are in the power of a crew of men who take no orders from passengers. You can go only where the merciless train takes you.

Nevertheless a great many progressive religious thinkers have bought tickets and have gone fearlessly aboard. Up to date they are having a fine trip. The lovable professor of electro-mechanics at Columbia, Michael Pupin, tells the passengers that "Science is leading us closer

and closer to God." The Rev. Henry Howard has preached to the Presbyterians: "Science has taught us that God is a spirit ever-present in our lives." It has become a commonplace of modern preaching to affirm that science is proving the existence of God—as shown by the title of Floyd L. Darrow's book, *Through Science to God.*

Such personal testimonies about the function of science are to be heard as the train pulls out of the station. They proclaim God, and they promise a pleasant journey. But you will now see the road taking a sharp turn. The train increases its speed. It swings about more and more. Then it heads for the desert of the *method* of science. That is a quite different matter from the personal impressions of pleasant gentlemen who address unsuspicious congregations. The *method* of science is a sterile plain on which not one sprig of emotion or intuition can grow. Nothing grows here but the uniform sage-bush of three steps of procedure: (1) gather facts; (2) make a guess about them; (3) verify your guess.

I wonder whether Professor Tweedy realized this when he preached at the Union Theological Seminary about what a young man ought to do when his religion crumbles. He said that men acted in various ways at such a crisis, and he indicated the right course: "The true reaction is a scientific one—to make an honest test of religion for one's self." Imagine that he gave the advice to that honest and acute Presbyterian preacher, Theodore Darnell, whose religion crumbled after some years in the ministry. Darnell has described what result men get when they react scientifically:

The more man studied science, the farther he got away from mythology and superstition. He came, at last, to understand that there can be no gods like those which his ancestors had invented; indeed, he came to realize that

if there is a God of any kind, man has no way of ascertaining the fact. Today man is able to find no data upon which to base an investigation of these matters, and he therefore concludes that time spent upon such an investigation is merely wasted.

Imagine Professor Tweedy going to Mr. Darnell and saying, "Come, come, young fellow! Take hold of this religion of mine and make an honest, scientific test of it." Darnell could only reply, as politely as possible, "But, my dear sir, I can't see anything to test. You say that you are holding out your religion for me to examine. But my eyes see nothing in your hands. They are empty. There are no data to test." The answer that nearly all scientists would have to make to a man who asked them to give God a test would be of that sort: "Before I can test anything, I must see it. Your request makes no sense unless I am to see and accept what is invisible." Plenty of scientists are religious—certainly. But only a very, very few of them are religious by way of their science. Eddington has expressly denied that science can take him one inch toward God, and most of his fraternity make the same denial. Pretty affidavits from the Pupins and Tweedys and Howards will not fertilize the desert of science.

The conductor of the science train is Shailer Mathews, dean of the Divinity School of the University of Chicago. He once told the Presbyterians in the Fifth Avenue Brick Church that "the most creative religious thinking now being done is by scientists, and there is a new appreciation of religion resulting from it, just as there is a new civilization." That is the perennial wonder of progressive theology—always something new to supplant the worship by which people lived ten or twenty years ago. Dean Mathews was interviewed last year for the *American Magazine*. "We hope," he told the reporter, "to

make the technique of religion as intelligible as arithmetic, to learn what God means to man, what man means to God." There is a vista before us—learning what man means to God. I like to gaze across the higgledy-piggledy landscape of present theological techniques to the calm majesty of the snow-capped peak of the knowledge that God has of man.

Dean Mathews is an out-and-outer. Most students of God, even the very progressive ones, make reservations about the new scientific technique; they still keep one hand on some old method of faith or intuition. But Dean Mathews has completely cut loose from all such indefinite emotions: "What we aim at is a technique that will always yield results and that anyone of intelligence can learn." Thus he looks forward to a time when all the medley of reason and personal experience and faith and revelation shall be junked and mankind shall feel God by a unanimous technique. He tells unflinchingly of his hope in science; the italics are his:

> It is also part of a scientific method that a point is not proved *unless others can repeat the experiment and get the same result.* Substantially, the scientific method is what we are applying in the Chicago Divinity School. . . . In the last three or four decades our knowledge and outlook have changed utterly; we are living in a different world; we are on a new religious frontier. . . . This means that men must be trained for religious research.

When the conductor has delivered this hearty little lecture to the passengers, they look out at the new frontier to which he points. They see scientific researchers making surveys of all Protestant superstitions. Scientific psychologists are dynamiting the personal experiences of God; scientific epistemologists are sinking shafts into the clear thinking about God; psychiatrists are assaying

specimens of religious intuition: critical biologists are mounting slices of faith for microscopical examination; a corps of anthropologists are sluicing the loam off the ledge of revelation; physiologists are analyzing some of the "whole personalities" of old-fashioned theologians to see whether there is any trace of God in them; a special council of geologists is planning a large-scale map of philosophy, in order to determine whether metaphysics is overlaid or underlain by God.

It is a bustling scene. All the researchers work with exhilaration. They wave their hands at the passengers who are getting off the train. These preachers of religious science look about at the corrugated iron sheds of method, the smokestacks of the technique shops, the dreary streets of the town of Procedure; they gaze far out over the glistening hot sands of Verification. Will they be happy here?

They are met by a reception committee of which Professor Mather, the Harvard geologist, is chairman. "Gentlemen," he says in his most delightful manner, "you will find that our God is not exactly a person, but still he has some of the qualities of personality."*

Harry Elmer Barnes gives the address of welcome: "Gentlemen, what we need here—if we need God at all—is such a conception of God as Dr. Fosdick might work out in the light of the astrophysical discoveries and conceptions of Shapley and Michelson, and the study of electrons by Bohr, Planck, and Millikan. It is of little value to attempt to inculcate a view of God so hopelessly inadequate and out-of-date as that which was slowly and painfully evolved by the semi-barbarous Hebrew peoples in the days when a rudimentary type of geocentric and

*The words that Professor Mather addressed to a meeting of five hundred Chicago ministers on Nov. 24, 1929.

anthropomorphic outlook reigned supreme and unchallenged.'"*

Another welcomer is a professor in a college of the state of New York† who is working earnestly to help students who lose their faith:

> First of all, there must be no nonsense or evasion. God must go; and, when gone, no time need be spent in the effort to bring Him back. We must turn to something that will strengthen and inspire the character as the thought of God once did.

If Professors Tweedy and Pupin know of some other railroad of science that is being built to where there are green pastures and still waters, they should make haste to issue a prospectus of it. If they delay, the Shailer Mathews road will soon deport all liberal thinkers to a frontier where every semblance of a personal God evaporates in the glaring heat of experimental methodology.

6. THE WAY OF FIVE-WAYS-AT-ONCE

I cannot describe this route, because it is beyond my comprehension. But I can tell you that it exists, and you can see what your eyes make out. The route is a combination of faith in the Church, faith in the private intuition of the soul, faith in the private experience that is objectively real, faith in clear thinking, faith in the scientific method. It seems probable, though I vouch for nothing, that most Protestants travel all five of these roads at once. They will tell you that each way of a making acquaintanceship with God contributes to their total assurance.

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*His words in a paper read before a convention of scientists in New York, Dec. 29, 1928.

†Cited by the Rev. William L. Sullivan, but not named, in the *Atlantic* for March, 1929.

They would not feel assurance if they had only the evidence of the Church's revelation; they would not trust far to their own private revelation; they are not dead sure that their minister's experience is a proof for them; they realize that clear thinking may go astray; they are somewhat suspicious of science. But if many men advocate each of the five approaches to God, the ordinary churchgoer seems to feel that the ways corroborate one another, like the many strands of a cable. Perhaps that is the right metaphor to illustrate the situation. But I should suppose that the analogy of a map was also worth considering—the five routes, each through different territory in different directions, all combining into one route. How can I travel five ways at once? I simply don't understand such a course. All I can do is to commend it to your close study.

7. THE WAY OF PHILOSOPHY

The way of philosophy is not important. Not many pilgrims are found on this group of queer by-paths. But the few people that you meet here are good proofs of what clear thinking can do. For example, H. G. Wells, exploring here during the World War, discovered a secondary god, a more homelike one, who could be written with a small initial, and who was accepted gratefully by some Christians. The "Cosmic Drama" has been found here, a great heavenly play of which God is the producer.

For the most part, the God who is reached by route 7 is a metaphysical concept, very beautiful to the profound reasoner, though somberly veiled as seen by ordinary mortals. A fair example of a philosophical God is this:

> The kind of character posited as inherent to the system of reality as a whole is the kind that could enter into mutual response with personality. And this character is what we mean by God.

Now, keeping that character clearly in mind, examine this next definition of what is meant by God:

> We mean by the term God not only that upon which we absolutely depend anyway, but that upon which we absolutely depend for the ultimate conservation of whatever ought to be conserved ultimately—that is to say, for the final conservation of whatever is so absolutely valuable that its conservation is imperatively and unconditionally demanded by everyone who appreciates what true values are.

I assume that "That Which" is the same Person as "This Character," but there is no way for a wanderer like me to know whether it is the same. I can't even make out whether each of these philosophical Gods is the same Heavenly Father as the one to whom I was taught to say "Now I lay me."

Whitehead says that today there is but one religious dogma in debate: What do you mean by "God"? He says that the modern world has lost God and is seeking Him. What he finds as a result of penetrating analysis is a number of definitions like these, scattered through a hundred pages of *Religion in the Making:*

> God is that non-temporal actuality which has to be taken account of in every creative phase.
>
> God is the measure of the æsthetic consistency of the world.
>
> The universe exhibits a creativity with infinite freedom, and a realm of forms with infinite possibilities; but this creativity and these forms are together impotent to achieve actuality apart from the completed ideal harmony, which is God.

If you are not philosophically inclined, you will not wish me to display any more of the long array of awesome figures that have been thought out in the intellectual

laboratories. But perhaps you will not mind a brief look at the God of Prof. Samuel Alexander:

God as actually possessing deity does not exist, but is an ideal, tending toward deity, which does exist.

Of course you do not need to be told that each philosopher's God exists only for himself and his disciples; to all other philosophers the God merely tends toward deity. Thus Professor Hocking disposes of all the philosophical Gods at one stroke on page 307 of *The Meaning of God in Human Experience:*

There is but one way to God, and one proof. . . . I have an idea of God: therefore God exists.

Hocking denies that routes 1, 3, 4, 5, and 6 lead to God. He declares that most of the philosophers cannot think straight. When he dines with Professor Whitehead in Cambridge, he looks across the table at a head which does not have in it one true notion about God. And Professor Whitehead looks upon a colleague whose head is filled with the superstition of Protestant theology. This is an example of all reasoning about God. Professors of divinity have to smile and speak courteously to their fellow professors whose minds are twisted at right angles to the truth. All of them have to be conscious that many professors of other subjects consider any sort of theological reasoning to be a mere chasing of ancient shadows, mere thobbery. If I felt any such consciousness about my profession, my mind could not be happy. I should forever be suspecting that my colleagues were tapping their foreheads and shrugging their shoulders behind my back.

8. THE WAY OF NATURE

It is fashionable in some quarters to rehearse the poem which concludes

Some call it Evolution
And others call it God.

Large-minded persons feel that natural processes are the works of God, that nature need not be distinguished from God. They argue that all truth must be one, and that therefore all scientific discovery is a discovering of God.

Professor Millikan is the greatest popularizer of this feeling. He is a high-placed physicist who has an engaging personality and who dispenses comfort from pulpits by repeating, "God—or Nature, or the Universe—whichever term you prefer." This certifies to a congregation that all knowledge leads to God, that science and religion are one common effort of the human intellect to learn more about God.

There is no need of objecting to this way of thinking, or even of questioning it. We need only to record it before we examine the ninth route.

9. THE WAY OF SOCIAL SYMBOLISM

There is no telling how wide or long this route is, or how many teachers of religion take it. Until three years ago I was only dimly aware that there is such a route. But when I read *Current Christian Thinking,* I suddenly found myself on a broad highway that was thronged with church members of all denominations. It was as if I had broken through a thicket on a dark night and had plunged into a glare of the electric lights on a boulevard. Yet I knew that I had previously been on that very spot and had seen only a detour from route 3. I was more mystified than you are now when you read this riddle. I will interpret it in plain terms.

The author of *Current Christian Thinking* is Gerald Birney Smith, a professor in Dean Mathews's Chicago School of Divinity. He carried me along on what I knew at every step was route 3. On page 103 (more than halfway through the little book) he said, "The theologian is no longer required to prove his assertions after the man-

ner of scientific proof." And on page 136 he said emphatically, "Christianity is the supremely true interpretation of the universe." At page 143 he entered upon his main business with the obvious truth that "The most important religious question of the present day is the definition of God."

I had no more suspicion of what was to flash on me from page 144 than I should have of coming to Michigan Avenue if I were swimming in Lake Michigan. Here is what I saw:

> An increasing number of religious thinkers are beginning to insist that this inquiry shall be an investigation of the resources and the meaning *of this natural world.*

I blinked and gasped. I took it for granted that I was misunderstanding.

But the next chapter, "The Modern Quest for God," ran thus:

> The weakening hold of theism today. . . . Theism comes to be a matter of taste, rather than a fundamental doctrine. . . . The scientist's belief in God, *so far as it persists at all,* is a rather vague emotional inheritance. . . . The appeal to God occupies a decreasing place in modern religion. . . . It is no wonder that men are beginning to ask whether the doctrine of God is not too difficult and too vague to furnish the best basis for religion. . . . God will be very real to the religious man, but his reality will be interpreted in terms of social reciprocity with an as yet inadequately defined cosmic support of human values.

It would have been possible for an unsuspicious reader, lulled by the first one hundred and forty-three pages of familiar sounds, to go right on through the last sixty-one pages without realizing what was meant. For Professor Smith gently camouflages the skeleton of God which now

hangs in the Chicago School of Divinity. It is the major business of that faculty to use the sacred old words with the new social meanings.

Don't suppose for a moment that I am harsh or that I overstate the case. Since reading Professor Smith's book I have inquired of several friends who are church members whether they understand the book as I do. The first one laughed at me. Of course he understood it so. He has for years been a member of a church, and proposes to remain there, giving his time and money to support it. But he has no more of his childhood belief in a personal God than Walter Lippmann has. "It is so much better for society," he explained, "to keep on using the old words in the new senses than it is to antagonize people by telling them openly about the new senses."

Take this tip from me: whenever in future you hear the words of a man who speaks of religion in connection with nature or social values, inquire what he means when he says "God." It is an even chance that he means only a social symbol. A considerable fraction of the pews of city churches are now occupied by members who have only a social interest in the forms of worship. Many pulpits are filled by ministers whose actual belief in a personal God is so slight that it would horrify the congregation if it were exposed to public view. But these ministers do not exhibit their lack of belief. They talk as reverently as Gerald Birney Smith does, and just as emptily. I know of a president of a Christian college in the Middle West whose God is no more personal than Smith's is, but who continues to preach and pray in the same old phrases for the sake of not disturbing the students and their parents.

He is imitating another of the professors in the Chicago School of Divinity, E. S. Ames, who has for thirty years been an inspiring shepherd of the flock of the Uni-

versity Church of the Disciples of Christ. I am told that his prayers ring with the full tone of the old-time sanctity. In his book called *Religion* he tells us stoutly that "God is as real to men as their fellows or as the earth they tread." He says that God is as real as Alma Mater or Uncle Sam. A Fundamentalist could sit through one of Mr. Ames's services and be as much edified as if he were in his own church. But Mr. Ames is using fundamentalist words in the Chicagoist sense. What he means is that God is *no more* real than Uncle Sam. He means to tell us, indirectly and kindly, that God is only like Uncle Sam or Santa Claus; He is *only* a myth by which people represent their aspirations to themselves. "God," he explains, "is the spirit of the people. God is not supernatural, but *wholly* natural." Mr. Ames has no more belief in the heavenly God of the Princeton Divinity School than the president of the society of atheists has.

A recent addition to Shailer Mathews's faculty is Henry Nelson Wieman, who was educated at a Christian college in Missouri, taught for ten years at a Christian college in California, and was for three years a Presbyterian minister. He has written *The Wrestle of Religion with Truth,* and it appears in this book that truth is going to give the old-time religion an awful fall. "We greatly need to know what God is," he declares; and the best way he finds to fill this need is to appeal to Whitehead—the philosopher who describes God as "non-temporal and non-conscious," who has made a dozen definitions. The one chosen by Wieman is this: "God is the principle of concretion." Mr. Wieman's God is even farther from my soul's need than Uncle Sam is. I could get more spiritual satisfaction by saying my prayers to specimen 4629A in a theistical museum of antiquities. The Wieman God is just another philosofact, another symbolism, another use of the holy name for the new Chicago product.

Make no mistake about the purpose of the social symbolizers. John Haynes Holmes, pastor of the famous Community Church in New York, told us honestly and directly what the purpose is when he reviewed books by Ames and R. J. Hutcheon: "Thus they agree together on that one point which is absolutely fundamental in all sound religious thinking today—that religion is *a purely human phenomenon.*" So Father Sheen is telling plain truth when he entitles his book about recent Protestant theology *Religion without God.*

No wonder that Prof. Daniel S. Robinson, of Miami, wrote a book to protest against the symbolizers, *The God of the Liberal Christian.* His opening chapter informs us that "this new school of social theology is unquestionably one of the most aggressive thought tendencies of our day." He says that his essay "aims to thread a path through this labyrinth of contemporary religious thought." In his second chapter, "Theological Method," he confesses the low estate of religious thought:

> Whereas only a comparatively little while ago theology was almost universally conceded to be the very acme of human knowledge, today it occupies a position among the sciences *almost exactly* like that of alchemy or astrology. . . . If it is to retain the respect of thinking people, it must, just as far as possible, apply the general procedure of all scientific research to the facts of religious experience.

When an enemy of the symbolizers confesses so much, we can feel, however reluctantly, that he is probably right. And when he announces that he is going to adopt the scientific method, we can guess, however reluctantly, that he has put his head into the mouth of a man-eating tiger.

The Chicago Divinity School is said to be the most important institution in America for training professors

of theology. It bids fair to increase its influence. It is a band of keen men who work with great zest and preach with enthusiastic art. They preach "God." When people hear the name, they never suspect what the preachers mean. For example, an editorial writer for the *Nation* read the *American Magazine* interview with Dean Mathews, in which he told the story of how the absent-minded Professor Wieman prayed to God, "Help me to remember everything instantaneously, the moment it is needed." The Dean's comment was, "He never thereafter forgot an engagement or an essential detail." This seemed to the *Nation* writer a silly exhibition of guileless trust in the magic of the ancient Jahweh. So he wrote a scornful paragraph about the superstition of Dean Mathews. He was probably deceived by the phrase "prayed to God." It is more likely that the Dean meant this: When Mr. Wieman excited *himself* by prayer *he* stirred *his own* mind deeply, spurred *himself* painfully, and cured *himself* of his forgetfulness; the cure was a human phenomenon, and God is just a symbol.

If a *Nation* editor is so misled by the use of the word *God* in the new Chicagoan sense, you can imagine how the average church member is entirely unaware of the human meaning now put into the old divine word.

The most famous illustration of this art of disguising the new symbolism is the work of Robert Andrews Millikan. In the *Atlantic* for January, 1930, the Rev. William L. Sullivan severely chastised the intellectuals who are no longer conscious of God. He argued that they are heedless and incompetent thinkers. He asserted that the greatest thinkers of the day believe in God.

Consider the case of Professor Millikan. This gentleman bears perhaps the most distinguished name in American science. He is known everywhere to be a believer in God.

Yes, he believes in God—just as Smith and Ames do. He uses the word *God.* What meaning does that word have in his inner consciousness? I have studied every sentence in his *Forum* article (October, 1929) without being able to find one trace of the old-time Christian God. Nineteen times he speaks of "the essentials of religion," but this essential element is always good conduct, the kind of moral behavior that Christ preached. "God" is frequently used, but as a synonym for the universe and nature. I cannot see any hint that Millikan's God is a whit more supernatural than the God of John Haynes Holmes. In Millikan's book, *Science and the New Civilization,* I cannot find any glint of the supernatural personality that is worshiped by Mr. Sullivan and by ordinary Baptists and Catholics and Jews. I find only expressions like these:

A nature, or a God, whichever term you prefer. . . . The God of Science [note the pair of capitals] is the spirit of rational order, the integrating factor in the world of atoms. . . . Religion has been rapidly freeing itself from the curse of superstition. . . . The anthropomorphic God of the ancient world is gone. . . . The new God is the God of law and order.

Such a God would never have passed muster with the committee that admitted me to the Congregational Church. Millikan scrupulously avoids any sentence or any phrase that would identify his faith with the God that ministers were praying to in 1890. If he has any glimmer of that former faith in his mind, he is the only author ever I heard of who so studiously concealed his conviction. He sounds exactly like a man who believes in the God of Holmes and Ames and Smith and Barnes. Until he publicly professes some knowledge of the Heavenly Father that Mr. Sullivan believes in, we cannot understand in what sense he "believes in God."

II. Why God Wanes

In this second part of the chapter I will indicate some of the principal reasons why men who desire God above all earthly blessings find their hope ever further and further from fulfilment—why God is waning from their souls.

1. BECAUSE THERE IS NO COMMON FAITH

By what mental or spiritual power can any rational being, in this maze of symbolism and science and faith and clear thinking, reach any knowledge of God? How does any minister maintain any knowledge that he had ten years ago? If the world were divided into two camps, the believers and the atheists, it would be common sense to enlist with the believers. But the only division that can be made is between the Catholic Church and all the rest of mankind. If only you have the kind of mind that can submit to revealed dogma, you are secure against all perplexity. Outside that dogma all is a mazy wilderness of thought, opinion, and private belief—the ultimate thobbery.

Some day a twentieth-century Dante will picture this inferno of the Protestant mind. He will represent the torments of self-distrust that constantly assail all Protestant thinkers about God. Professor X will be lacerated by the knowledge that Professor Y considers him superstitious. The vitals of Professor L will be gnawed by his concealment of his real opinions from the people to whom he preaches. Professor M will be tossed about in a fountain of the fire of the liberal theology with which he was secretly in sympathy, but which he dared not accept. A band of professors will be immersed in a lake of pitch, and the visitor who sees their bubbling breath will be told: "These are they who in life were aware that three-fourths of the psychologists in the world evaluated theo-

logical labors as brainless calisthenics, yet who persisted in calling theology scientific."

How do the theologians preserve any self-respect in a university? Fifteen years ago Professor Leuba's statistics indicated that less than thirty per cent. of the psychologists and sociologists of America believed in a personal God. A theologian, then, must assume that seventy per cent. of them are blind and deaf to the most fundamental truth about the soul and society. If I had to live with such an assumption, I should blow my brains out. For if the picked intellects of my country are so utterly wrong in the very fundamentals of right thinking, human brains are not worth keeping. And if I had to live with the converse suspicion—that my own mind was puttering with desiccated myths—I should be afraid of myself. And a man afraid of himself has no need of his brain. If an ordinary citizen can believe in God, he is lucky; it is sensible for him to believe. Or if an ordinary minister can maintain his faith in his intuition and experience, he is rightly following a noble calling. But the men who make books like *Must We Part with God?* or *The Personality of God* or *My Idea of God*—such men must feel a horror of the majority of university professors. I could not live if I had to despise or pity so large a proportion of my intellectual peers.

No, I should have to restore my serenity. The only way I could restore it would be to admit the probability that my own brain was at fault. Then I could be happy. I could still see the possibility that three-fourths of my colleagues might be wrong, and I need not abandon hope. I could welcome all evidence and could fraternize cheerfully with all gentlemen whose minds were open to probabilities. I should not pompously think but should remain curious. Thus my mind would live in security, knowing that its peace could never be invaded.

2. BECAUSE THE PROBABILITY OF KNOWLEDGE DECREASES

What is the probability about human knowledge of a personal God? One indication is the way the human mind worked in the case of hell. In 1890 almost all ministers preached a hell of some sort; hell was just as real and necessary as God in the religion I learned. In the forty years since that time not one new fact about hell has been discovered; not one dyne has been added to the power of logic; no scientific investigator has discovered anything that disproves hell. Yet the belief has gradually dwindled. Why? I wish we knew why. All we can guess is that men quit believing in hell because they could never see it or feel it or hear it. It more and more appeared to be the product of confident thinking that could not be verified. Its probability decreased, shriveled, faded. Ministers grew afraid of being ridiculous if they mentioned it. Hell seems to be dying because it cannot be verified by all men alike.

The progressive theologians are now appealing to verification for the knowledge of God. Every college president who wants students to think clearly, every professor of divinity who adopts any fragment of scientific method, and especially every reasoner who appeals to experience—all this intellectual host are appealing to verification. For modern thought finds no meaning in any sort of reason or experience that cannot be verified. And the percentage of verification of the knowledge of God has much decreased in the last forty years.

Another indication that the knowledge of God is waning may be seen in the disappearance of the so-called "religious instinct." In the 'nineties, when the consciousness was supposed to be made up of many separate faculties, it was natural to assume that religion dwelt in a special instinct or department of the psyche. But no such special faculty is discoverable. In fact, the progressive theo-

logians now deny it with one voice. They affirm that any real God must be knowable by the whole consciousness of every normal person. "If ever men perceive God," says Wieman, "it must be through the senses, for that is the only way that perception can occur." And Hocking, an entirely different genus of reasoner, takes pains to say explicitly: "The truth about religion cannot be obscure or intricate. . . . Religion must be accessible to all sorts and conditions of men. . . . The function of religion is to make the way plain to all men." . . .

The present lack of knowledge of God in universities can be gaged by the change that has come about in the minds of philosophers. In 1890 only the exceptional philosopher in America was agnostic. But in 1930, when thirty-four of the best-known philosophers in our universities wrote their intellectual biographies in a symposium called *Contemporary American Philosophy,* only five professed a knowledge of a personal God; four seemed (I cannot be sure) to speak of some philosophical God; five said nothing on the subject; twenty stated plainly that they had no knowledge of God. The shift of opinion is an avalanche. Can you imagine any reversal of such a tendency of thought?

The majority of philosophers would agree entirely with the Randalls, Sr. and Jr., in *Religion and the Modern World.* The father was for forty years an active minister (beginning as a Baptist); the son is a professor of philosophy at Columbia. They unite in saying:

> Those ideas of God and immortality have simply dropped out of any serious grappling with the problem of understanding the world.

Most of the philosophers do not like to hurt their readers' feelings by speaking too plainly on such a sacred subject. But they indicate clearly enough that they agree

with the judgment of C. E. M. Joad. He earned a scholarship in philosophy at Oxford and is now a tutor and lecturer in philosophy at the University of London.

God, as popularly conceived, is a being of immense power, made by human beings in their own image to give significance to human life. . . . It has been my lot in recent years to be brought into contact as a teacher with many young men and women in the early twenties. . . . Of religion in the ordinary sense of the word they have none. In an average company of them, not one will be found to believe in God, and scarcely any will feel a need to believe.

The fact that these young people do not feel a need to believe is the third indication of the disappearance of the knowledge of God. I remember that shortly after I had graduated from college I was talking with a teacher who was the father of three children. He told me that he had lost all contact with God. "But," said I, "if you have lost God, how have you the courage to bring up a family?" He replied that he had been much happier since Jehovah departed from his brain. Bertrand Russell testifies that he continued to believe in God until the age of eighteen and, to his surprise, was happier when he had abandoned the belief. Professor Tweedy is reported to have said, when he preached to the graduating class of 1929 at the Yale Divinity School: "The vast majority of educated folk today are apparently getting along without God quite comfortably." (I wish I knew whether "vast majority" is correct.) The Rev. J. H. Melish has preached about "the growing unbelief in God." Rabbi Feinberg has told his congregation that churches nowadays are "mausoleums of a vitality that is gone"—though he had not lost his own faith. And Rabbi Wise has gone much further: "It is my belief that a majority of thinking men today cannot find it in themselves to believe in a personal,

directive, divine being. . . . Even the creation of the supernatural God is the work of the inward goodness and beauty of man." None of these speakers predicted that the knowledge of God is to be revived in the future.

In fact, there are many university professors who consider that the faith in a Christian God is an evil force in the world. E. M. East, of Harvard, is not peculiar when he speaks of it as "a creed extraordinary for the savagery, the ignorance, and the egotism which built it up."

The creed has been beautified and made socially desirable by basing it on the character and wisdom of Jesus, as if he were God, or certified to the goodness of God. But the J. H. Randalls, who are most spiritually-minded, argue that the wisdom of Jesus would be destructive of civilization if it were really applied:

> The moral precepts of Jesus show little concern with what have become the necessary conditions of human existence today. . . . To all these vital concerns of today the words and practices of Jesus are either irrelevant or profoundly out of harmony with the convictions of modern men. There is not one of these forms of our life in which Jesus can be imitated, or his words literally obeyed, without the downfall of the whole structure of modern civilization.

The Rev. Robert Keable, in the *Atlantic* for December, 1928, is quite in accord with the Randalls:

> This doctrine of a Father-God is now centuries old; we have accepted it on the assumed authority of the traditional Christ, whose voice was none other than the voice of God. But the fact is that it is not true. Jesus had no special knowledge of God. Jesus was essentially an ignorant man.

These outspoken words of Keable represent only a small fraction of the opinion expressed in recent books. It

would not deserve attention in this chapter except for the fact that it is growing and that it is exactly in line with the present trend of sociology. Observe it for the next ten years and see whether it dies or flourishes.

3. BECAUSE THEOLOGY IS NOW APPEALING TO VERIFICATION

A remarkable indication of the difficulty that is experienced by college teachers of religion is given by G. H. Betts, professor of religious education in Northwestern University, in *The Beliefs of 700 Ministers.* In his foreword he explains the purpose of gathering the statistics:

> Some basic questions concerning God arise in every normal mind and demand answer. To these no answers based on objective proof can be given. The best we can do, if our questions are to be answered and the mind find rest, is to sum up the probabilities and *believe.* . . . In religion the only proofs are subjective.

He italicizes the word *believe.* His students must feel as puzzled about it as I once felt when I read Mansell to quiet my doubts. Through half of his book he marshaled in masterly fashion the arguments that would compel any young man to be an agnostic; then he turned squarely about and leaped over the chasm into the second half of his book with this sentence: "Since we cannot know, it is our duty to *believe.*" I have never recovered from the astonishment of the moment when I saw what this philosopher had done. Recently I have seen a similar feat performed by Valentine in his first chapter: "And it behooves the Christian thinker to examine the situation with the utmost care, with an open mind, *and with a resolute faith in Christian truth.*" I cannot make a reply to such counsel, because it is far beyond my understanding. All that I am interested in is to point out that Professor Betts's students in a modern university are taught in every sub-

ject but one to examine the probabilities and not on any account—as they value their mental integrity—to believe until all competent investigators unite on one probability. They come, so instructed, to the class in religion. They examine probabilities. They are told to believe one probability. So in Evanston they must not wait for verification. If they take an elevated train to the South Side, they will be told by the whole faculty of the Divinity School that they must wait for verification. Students must feel that the road to God leads over a perpetual earthquake.

This difference between Evanston and the South Side is the key to the conflict between science and religion. We read that there is such a conflict, and we read that there is no such conflict. We most commonly read that science and religion have their own domains, that each is supreme in its own sphere. And that is undeniably true so long as religion is purely a matter of revelation or faith or subjective experience. But these are small and dubious areas in the wide realms of the modern intellectual activities. Everywhere else there is a growing demand for verification. There is increasing conviction that an idea is a mere opinion until all normal observers see it alike, that knowledge is never subjective, never absolute, but is a matter of probability. So the knowledge of God is set apart; it is in a strange, dim, walled-off region where verification does not enter. And now the theologians in all quarters are making breaches in the wall and inviting verification to come in. Every least concession to clear thinking, every least adoption of some degree of scientific method, is a welcome to verification. And God cannot be verified. The religious experts (as Mr. Fosdick calls them) cannot verify God even among themselves. This is not simply a conflict with religion; it is a massacre of the knowledge of God.

The ordinary believer in God has no conception of the

extent to which his friends suppress their feelings about his faith. They are glad he has it, and they covet it for themselves. But if he does any clear thinking about it, they silently wonder at his mentality. If he could somehow open their minds and get a view of how they feel about him, he would not recognize himself.

4. BECAUSE THEOLOGIANS ARE SUCH FIGHTERS

The chief reason why God disappears from modern minds is the heedless arrogance with which believers wave aside all beliefs but their own. A Protestant Fundamentalist will blot out the whole of Catholic theology with one sweep of his eraser, and a Catholic will thrust all Jewish and Buddhist faith into the ash-can as if they were bits of waste paper. Yet these same destroyers expect a college student to give reverent heed to their own belief. They teach us that the most long-established God may be a dirty cobweb for any vigorous broom. They teach us that Jehovah may not be an exception to the oldest rule of theological history.

The chief failure of all the reasoners who try to keep God alive is that they assume a hostile world. They unvaryingly assume people who deny God, who are unwilling to learn about Him, who contend against Him. And, to be sure, there are many unwilling or indifferent or pugnacious people against whom preachers have to strive. But, so far as I can see, these people are in a minority. Most of the agnostics I know are men and women who would like to believe in God. And even if they are a smaller fraction than I think, they are the ones who ought to be addressed. They lost God unwillingly; they have striven to find Him again; they would welcome any guidance that would direct them to a way of knowledge. But no one pays any attention to them. It seems to them that the religious arguers want to be in a position that is effective

for debate. The arguers want to pose as warriors who are fighting a good fight against a pagan army. Their oratory is more stirring if they brandish weapons against enemies.

Why not sometimes forget the enemies? Why not address some of the books and essays and sermons to the persons who are altogether friendly, who are utterly prejudiced in favor of a personal God? There must be some way to explain how the precious knowledge is attained. The friendly persons wish explanation, not a bombardment. They want to understand how light is to be had. If they can get no light except from the artillery along the religious front, they must suppose that probably God is disappearing from the human mind.

Henry Sloane Coffin tried to express this need to a conference of ministers in New York, on June 23, 1930. He was for twenty-six years the pastor of Presbyterian churches in New York, and for the past five years has been president of Union Theological Seminary. He put the case thus, if the *Times* reporter is correct:

> Those who see the universe from the modern viewpoint declare that "a sovereign deity" is incredible. . . . A church that would appeal to the modern viewpoint should take the knowledge that science has opened up and use it to inform men how to think of God's relation to the universe.

In each of his sentences there is a deep error, typical of how the pulpit mind misconceives the need of today. Men who are accustomed to the modern view-point do not find a sovereign deity incredible at all; in fact, they think that He is the most natural hypothesis about the background of the universe. He is extremely probable. What ministers ought to know is that deity is *invisible.* And ministers ought to realize that they can never give any in-

formation about God by using scientific knowledge. For it is just that knowledge that veils God from the modern view-point.

The need is better divined by Prof. J. B. Pratt of Williams College, a Christian philosopher who has studied the religions of the East. In *The Religious Consciousness* he tells, for a religious purpose and with kindly sympathy, a story that illustrates the deep ignorance of God:

> At a prayer-meeting in a small village not far from where I live the pastor asked those present to describe their idea of God. One good and very candid deacon, when it came his turn, responded that his idea of God was "a kind of an oblong blur." The answer probably represented fairly well the state of mind of most of his less candid neighbors.

Indeed it represents very well the state of mind of any rational being who looks steadily for a few months at modern theological literature. The garish medley of experience and intuition and science produces only a blur in the mind—such a weaving blend of unbordered contradictions that we cannot even tell whether it is round or oblong.

If a Protestant theologian could be as candid as the deacon, if he would take one honest and curious look at the shapeless blur which is the product of fifteen centuries of reasoning, he would not be able to add his little item of wayward flickering to the mass of murky and resultless thought. He would perceive that each decade of opinion in the twentieth century is confounding the previous decade. He would perceive that every belief now recorded in Protestant theology is canceled by a swarm of the equally valid beliefs of equally competent believers. He would see—as any ordinary outsider can see—that the only result of the millions of profound treatises is a

vague blotch that psychologists diagnose as a symptom of mental frailty. All the impressive mountain of thought and opinion and belief about God would be seen as a mere thin cloud of thobbery which the wind of science is now dissipating. Such a sight would overpower him. He could not abide it. So he looks the other way and plans another warlike essay about the nature of God.

CHAPTER XIII

Philosophy

A generation ago philosophy was usually taught by the president of a college, because its importance far transcended that of every other subject. It was the supreme court which passed judgment on all other subjects, presiding over them with wisdom and insight. It explained morals and religion, certifying that they were based on indubitable truth. In the nineteenth century philosophy was the ultimate form of wisdom and logic and knowledge, as is shown by the definition in the *Century Dictionary,* made about 1888: "The body of highest truth; the organized sum of science; the science of which all others are branches."

When you have seen how the status of philosophy has changed since that definition was written, you can guess at the probability that philosophy will survive forty years longer in the curriculums of our universities. To me the probability seems strong that it will die, or will be transformed into something else which goes by the same name. Indeed I suspect that it has already become something else. A clue to my suspicion is furnished by a reviewer in the London *Times* Literary Supplement, a journal that is always respectful toward philosophers: "In philosophy, as there is no objective standard, there is really no satisfactory reason why one opinion should be better than another." If philosophy is only a set of opinions, and if there is no way of verifying any of them, it is hard to see how philosophy can signify in modern thought.

"Philosophy," says Dean Gauss of Princeton, "used to be a quite creditable profession." Perhaps a majority of college deans now agree with Mr. Gauss that philoso-

phy is not quite creditable today. But its ancient prestige still gives it the semblance of life. Each university still has its department of philosophy; philosophy is still regarded by part of the educated world as a legitimate exercise of the mind; and books on philosophy continue to pour from the publishing houses in an undiminished flood. Some philosophers are still able to think of themselves as men with superior intellects and to suppose that they can look down on the laborers in other academic fields.

But an increasing number of philosophers speak humorously or accusingly of their subject:

A. K. Rogers: I have long been of the belief that the only possible hope that philosophers may get together lies in dropping their logic temporarily and telling one another frankly and in plain terms the human interests that engage them.

R. M. Wenley: There is nothing like general acceptance of any philosophy as true.

F. J. E. Woodbridge: The philosopher will have plenty to do in making confession to the world and warning others from the sad employment of their time, using the history of philosophy as a text.

It is likely that even the modest estimate which the younger philosophers are now inclined to make of their profession is too high. There are many reasons for predicting that by the time they reach the retiring age no successors will be needed for their places. Probably philosophy is dying out rapidly. I offer some of the evidence for thinking so.

I. Philosophy Is Already Undefinable

In 1880 the academic world could unite fairly well on the definition that philosophy was "the body of highest

truth." Philosophers believed that their business was to reach truth by a logical process. Of course there were some scientists at that time who considered that philosophy was only mental gymnastics, but the learned world was well-nigh unanimous in feeling a deep respect for the mighty works of Hegel and Kant and Spinoza and all the rest of the host of splendid reasoners. I am sure that in 1890 I never encountered the suspicion that these works amounted to nothing. I read a little Spencer and Lotze and Fiske with complete reverence. I still have the translation of Kant's *Kritik der Reinen Vernunft* which I bought before 1900, and I recall as if it were last week the glow of self-congratulation that I felt as I cut the pages and looked with awe at the wisdom which I knew would be too deep for me. No doubt occurred to me about the definition of philosophy; it was the method of attaining the deepest truth, and it necessarily led to God.

Yet I knew that some philosophy led away from God. So philosophy contradicted itself. Why this fact did not trouble me I cannot now recall. Presumably I argued that, although some philosophers might use logic mistakenly, philosophy was not to blame.

The fact is, at any rate, that up to 1915 my deference for philosophy had not diminished. I recollect that in 1917 I was floored in argument by a man who could cite Hegel against me, and I was chagrined at my ignorance. It was not till 1920 that doubt broke upon me, in this way: I happened to say in conversation with a friend, "But think of all the great achievements of philosophy." His reply was, "What has philosophy ever done?" I began an answer glibly enough, but had to falter. I have never completed the answer. Much against my inclination and my pride in a long-held opinion I had to admit defeat. I can't discover what philosophy has achieved, and am not even able to tell what it is supposed to achieve

or what it is. The principal activity of philosophy during the past decade has been to elude definition. There are almost as many definitions as there are philosophers. I will briefly explain the most salient ones.

(a) The most widely held definition of philosophy is: "A way of reaching a larger or better reality than science can reach." This has always been the dominant belief about the nature of philosophy and is still generally assumed as matter of course by educated people who do not read recent philosophy. But it is generally denied in the books and essays written since 1920—for example:

E. B. McGilvray: My philosophical creed is that if we are to have an even partially satisfactory philosophy, we shall get it only by the use of scientific methods. . . . The self-imposed task of the philosopher is the integration of the scientific interpretations of the world. . . . It behooves a philosopher to be quite humble in his attitude toward his results. He should never infallibly know that he is right, and should always suspect that he is wrong.

R. W. Sellars: What can we know about the external world? Essentially what science has worked out.

H. C. Brown: The scientific spirit now dominates—and philosophy suffers accordingly. The young philosopher must imitate scientific procedure.

G. W. Cunningham: So far as method is concerned, I of course see no difference in principle between science and philosophy.

(b) The most obvious definition of philosophy is that it is a combination of logic, epistemology, metaphysics, and psychology. Look for a moment at each of these undefined parts of an undefinable whole:

Logic is so little trusted or understood by Warner Fite that he exclaims: "Nothing seems to me to be more of a travesty upon experience, more of a caricature upon thought, than what is called 'logic,' especially the

formal, or syllogistic, logic. The syllogistic logic is not even a good game."

Epistemology is that branch of philosophy which aims to analyze the nature of knowledge. Its futility, according to modern conceptions, was explained in Chapter VI.

There is no generally accepted definition of metaphysics, but it is a method of examining the ultimate nature of things *in themselves,* as distinguished from the way we perceive them. A standard attempt at definition is: "Supernatural science; the doctrine of that which transcends all human experience." A sufficient comment on the definition is the fact that such unlike and such prominent philosophers as Dewey, Santayana, and Bertrand Russell agree in despising any such science and in ridiculing any such doctrine.

Whitehead thinks that philosophy "is creeping back into its old importance owing to the rise of psychology and its alliance with physiology." But hardly any psychologists know that such an alliance exists; most of them think philosophy is absurd, and they would repudiate an alliance. Hence the philosophers who hope that a blood transfusion from psychology will revive them are making their subject entirely undefinable for the rest of the learned world.

Other elements used to be interfused in philosophy, such as intuition of various sorts. But if you accuse a modern philosopher of relying on intuition, you will be thought ignorant. Durant Drake, for example, asserts that intuitions are of no value because they are conflicting: "A summary of the results of trusting intuitions would show that, while they do sometimes lead to truth, they often lead to error. Only the patient use of the empirical method, as worked out by the sciences, can decide which is which."

Hence philosophy, which is compounded of undefinable

elements, is a method that is as undefinable as the cube of any of its constituents.

(c) Philosophy has often been defined as a supervisor or guide of science. Plato considered that "dialectic is the coping-stone of the sciences; the nature of knowledge can no further go." Georg Simmel was explicit on this point: "Every exact science has to submit to an investigation of its presuppositions by philosophy." And E. A. Burtt—modern and American—is no less confident that science must kneel before philosophy: "Has the time not arrived for us to stop swallowing gullibly this metaphysical substructure of the scientific movement and subject it to a critical examination? . . . Modern philosophy must forever remain in its pitiful rut until such an analysis is once for all done." He calls upon philosophy to gird itself, to discover the true metaphysic of science, and so to guide present-day mathematicians out of their ignorance. A similar claim of the superiority of philosophy over science is made by J. A. Gunn; he asserts that the question of the nature of time must be settled by philosophers, who consider that a mere mathematician like Einstein needs guidance from metaphysics.

Yet the scientists know nothing about any supervision by philosophers. They have never heard of a single case in which science got any guidance from philosophy, nor do they have the least anticipation of such help. They can see that nowadays all philosophers are flocking to the laboratories of science and peering in to get a view of the nature of time as Einstein's mathematics reveals it, so that they may return to their studies and philosophize about the findings of science. Science is merely amused by philosophy. "The philosophers," said Einstein to an American interviewer, "play with the word *relativity* like a child with a doll." Eddington says that "all prying philosophers ought to be kept out from the new quantum

theory." And Bridgman, the Harvard physicist, has gloomily predicted "an era of debauched thinking" by the philosophers as soon as they get an inkling of the sub-atomic region where no law of causality can yet be discovered. I have never heard of any scientist who would think that a supervising philosopher was anything but a logical joke.

In fact I should guess that most of the philosophers themselves make no claim to guide science. Sterling P. Lamprecht, for example, has written a dissertation on causality, in which he remarks that "philosophical writers have often failed to recognize the function and purpose of science." He says that "the whole of modern philosophy pays deference to science." It is hard to imagine a supervisor paying deference to the science which he supervises. But possibly philosophy can take that strange attitude; for philosophy can do or can be anything, according to the philosophers who make the definitions of its functions. It seems more likely, however, that the attitude described by T. V. Smith is the one taken by the average philosopher today: "Metaphysics is sometimes conceived as knowledge of a larger or better reality than can be known scientifically. At the boundary of research the metaphysician appears to confound the timid scientist by telling what's what. Well, I must admit that this type of metaphysician confounds me as much as he does the scientist. I, for one, do not doubt that the several sciences, through their own plodding trials and errors, will give us all the knowledge that we shall ever have about the nature of reality."

A more common way in which philosophy presumes to set science straight is by correcting the false philosophy of science. All persons of a philosophical turn of mind naturally assume that science tries to philosophize. It is marvelous to see, in a flood of modern essays, how it

is assumed that science develops a philosophy which is materialistic or pessimistic or utterly horrible in some erroneous way. James Truslow Adams is a fair example: "I believe that science will some day cease to be the sole way of interpreting the universe. . . . I believe that man will insist on some restoration of spiritual and moral explanations and values in the world." But—bless your poor troubled soul, Mr. Adams—science has never had any method of interpreting the universe and has never destroyed any spiritual values. Science would not stultify itself by discussing values, for it knows nothing about them. All the interpretation and destruction which you bewail have been made by philosophical people who developed thoughts and opinions and beliefs about science. If you must scold somebody, scold these philosophers.

The philosophers, in their efforts to interpret science, seem to have done nothing but transmogrify it. An illustration is the work of a correspondent for the *London Observer* who has explained the views of the greatest physicists about the free will of the electrons. He concludes that the truly creative minds of the future will make "religious insight the source and guide of scientific insight." Thus a religious philosophy is enthroned over scientific investigation. But most modern philosophy has already abdicated the throne. Such is the undefinable status of the sovereignty of philosophy.

(d) Philosophy is defined in some quarters as a supervisor of social improvement. Hocking has told the American Philosophical Association that pragmatism must "widen the scope of the inductive methods in the field of social philosophy, and thereby render our moral thinking flexible." He called this "the most responsible of human enterprises." Count Keyserling has striven, in *America Set Free,* to render our moral thinking flexible

by psychoanalyzing the United States. He liberates the unphilosophical mind with revelations like these: "The negro is the only completely adjusted American. If you wish to know the true nature of the American genius, study him. . . . The hope of an American culture lies in a rebirth of the Southern aristocracy." Another phase of philosophy in its social application can be seen in the judgment of a statesman that "Wilson's thought was the chief benefit of the World War."

A score of witnesses could be cited to the power of deep thought for improving society. John Dewey is the most famous one. He believes that the great business of philosophy is to be "an instrument of social reforms." But he only points to a hope for the future. A more picturesque man to quote is Pupin, who soars out of his electrical engineering to give us this vision of what philosophy has already accomplished:

> The science and the art of electrical engineering are the creation of a new philosophy which we call the philosophy of idealism in science. . . . The motive was the unselfish longing for God's eternal truth. . . . Today American industries worship at the altar of idealism in science. . . . Just as the cosmic processes of creative co-ordination guide the evolution of the external material world, so creative co-ordination also guides the evolution of the internal world of the human soul, the destiny of human life. This is my message from science.

But the great body of philosophers would deny that they know how to operate in such a divine field as Pupin's or in such a practical field as Keyserling's. They would deny that these efforts are philosophy—or else they would agree with Herbert Croly that philosophy has been an utter failure in social efforts. Croly repudiated philosophy in these words: "For more than one hundred years philosophers have written books on human nature in its

social and political manifestations which pretended to the virtue of being scientific. Yet their successors have almost always denied the pretension. The new social science persistently has condemned the formulas of its predecessors as pseudo-science."

(e) C. D. Broad is a philosopher of renown who is always quoted with respect. He cleaves philosophy into two parts. The first part is all that we commonly think of as philosophy—that is, the speculative use of the reason. The speculative philosophers, according to Mr. Broad, are "pretentious dogmatists who are more certain of everything than they have a right to be of anything." Mr. Broad's kind of philosophy is defined as "critical"; it is a resolute criticism of our fundamental beliefs. Probably every philosopher considers himself a resolute critic, yet Mr. Broad can name dozens of them who are merely speculative, and he dismisses their work as "elaborate systems of moonshine." Thus you can see how strangely philosophy resembles theology—any professor of the subject feels competent to annihilate, with one wave of his cogitative wand, a whole army of thinkers who hold a different opinion.

Mr. Broad's definition is probably valid, but there is no way of telling just what it means or of applying it to distinguish the critics from the moonshiners. It sheds no light on what philosophy is.

(f) I once spoke to a philosopher about the stern logical pretensions of philosophy. "Oh," he replied, "philosophy is not stern and makes no pretense of revealing facts. Philosophy is a form of poetry." So I found myself once more, as I always do, unable to talk with certainty about philosophy. When I think I have a well-accredited definition and venture to apply it, I find that it is wrong. If philosophy really is poetry, then all the mysteries clear up. Each philosopher is at liberty to

frame his own conception of the world. Lippmann's definition of philosophy then becomes, not an accusation, but a friendly description: "The philosophies which have grown up about science are nothing but provisional dramatizations which are soon dissolved." Every system of philosophy has been a poem about one man's notion in a certain place and a particular era, but no system has had any logical authority. We can accept literally the definition of Ignacio Manlapaz: "The philosopher is an artist whose medium is the universe. Truth with him is just an artistic effect."

I am prepared to believe that every philosophy is just the work of an artist. But ask Mach and Dunlap and Hicks to accept this definition of their profession. They will think you so ignorant that you are not worth an answer. To many modern philosophers Plato is only an artistic dramatizer of ideas, a poet; but others spend laborious years in serious analysis of the serious logic of Plato. So we can only conclude that philosophy is mere poetry and is not mere poetry.

(g) A seventh fairly common definition of philosophy is that it is a set of opinions which any man finds agreeable or profitable. William James—whose lively and discerning observations are still cited in an age which thinks him a dear old fossil—explained this pragmatic notion of the sort of truth that philosophy attains: "Truth for each man is what that man 'troweth' at each moment with the maximum of satisfaction to himself." The definition may sound flippant, like a caricature. But I suspect it is the fundamental fact, though seldom confessed, about every metaphysical system. If a man reasons his way to an opinion about the universe that is satisfactory to his mind, he will "trow" it and make it his firm philosophy. Very likely all philosophy has been, in the last analysis, an agreeable trowing.

If so, philosophy is set apart from all the reasoning done in science and business; for it is private and cannot be verified. The scientist who trows anything not trowed by all his associates is an absurdity, and the manufacturer who trows industrial conditions because they satisfy his fancy is ruined. Hence the philosopher who accepts James's definition nowadays is a freak in the intellectual world. Only a few philosophers will admit the definition.

(h) An eighth definition is somewhat similar to the seventh, that philosophy is just any man's way of regarding the world. Thus we say that everyone, however little he reasons, "has a philosophy of life." Everyone who speaks of his feeling or his guess about the general nature of things is said to be expressing "his philosophy." In this sense I am now writing a philosophical book. If Huxley flays philosophy or Darwin lets philosophy severely alone, each is said to be recording his philosophy. Every man, whether he likes or not, is of necessity a philosopher.

We should not need to devote two paragraphs to this definition if it were not so commonly applied to scientists. A large body of philosophers, unable to imagine a human being whose purpose is not philosophical, assume as an axiom that a geologist or an astronomer is deducing metaphysical principles when he makes his investigations. Science—no matter how much it denies or runs away from metaphysics—is taunted with "having a philosophy." This is the most exasperating of all the flock of definitions of philosophy. It causes more mischief than all the others. The fact about science and all kindred reasoning is that it puts no trust in itself until it is verified. If it had any tincture of philosophy, it would rely upon detached logic. It is not concerned with any implications that reach beyond the senses and try to reveal something about values or emotions.

(i) The ninth definition is increasingly coming into fashion—that philosophy is a game. George Boas, in *The Adventures of Human Thought,* says that after the Civil War "Philosophy lost contact with the vital problems of American life, and American philosophy became a purely intellectual sport." J. Loewenberg's experience with Hegel is an index to the way in which many of the younger philosophers came to realize that some great sections of philosophy are just amusements: "Hegel's *Phenomenology* thus became for me a comedy of errors, a vast playground of human ideas striving to be more than human." Henry Adams spoke of philosophy as "the amusement which consists chiefly in suggesting unintelligible answers to insoluble problems." Wyndham Lewis is of the opinion that Bertrand Russell's philosophy is "essentially a craving for amusement"; and I fear that the charge is just. Burges Johnson makes his cracker-barrel philosopher say that "philosophizin' is just self-indulgence," and perhaps he is as good authority as the technically-equipped Adler, who puts the accusation into polished terms: "Philosophy is an experience of the comic spirit, for those who enjoy it in the dialectical pursuit of conversation."

If philosophy were only the antics of a band of Puck's followers, we could be entertained by their game. But most of them are serious fighters. They wage war with their dialectic. They brandish their swords against their own companions as freely as against the pagans. Their glory is to demolish adversaries. They merit the stinging estimate that Lady Violet Paget makes of them in *Proteus:* "Among such things as may some day vanish and be forgotten there will, I trust, be the dialectic jiu-jitsu which makes many pages even of Plato such dreary reading. . . . Controversy of this kind has but a personal value, adding nothing to knowledge. The per-

sonal value of downing an adversary . . . may be reckoned in some distant future an intellectual entertainment fit for cads."

Obviously, most philosophers would not accept a definition of their profession which makes cads of them.

(j) Perhaps Bertrand Russell is driven by the comic spirit when he proposes the tenth definition, but he appears to offer it in all seriousness: "Philosophical knowledge does not differ essentially from scientific knowledge; there is no special source of wisdom which is open to philosophy but not to science, and the results obtained by philosophy are not radically different from those reached in science." Many of the younger philosophers consider that the definition is no joke. They are planning their careers by it. Several of the quotations in section (a), above, show how commonly the definition is now repeated. Philosophy is becoming alarmingly scientific.

Now that you have seen how undefined philosophy is, you will be on your guard to challenge everything that I say in the rest of this chapter. No statement can apply truthfully to all the modes of reasoning that are enlisted under this one common name. All I can do is to be as wary and respectful as possible, using for the most part the testimonies of the philosophers themselves.

II. No Philosophy Has Been Verified

Plato has been more generally admired than any other philosopher. "All philosophic truth," says Ferrier, "is Plato rightly divined; all philosophic error is Plato misunderstood."

Yet to many present-day philosophers Plato is only an imaginer of idolons that cannot be seen by the modern brain. F. J. E. Woodbridge says that no system of philosophy is definitely outlined in Plato's work, that inconclusiveness is the constant outcome of the dialogues,

and that he was the wisest of men simply because he was conscious that he had no wisdom at all.

As for the thought-forms that Plato constructed, we may safely accept the judgment of his most famous translator and commentator, Jowett:

> Plato seeks to combine the "universals" which he has disengaged from sense, not perceiving that the correlation of them has no other basis but the common use of language. He never understands that abstractions are mere abstractions, adding nothing to the sum of knowledge.

In his comment on the *Phædo* Jowett goes farther:

> When we consider how much the doctrine of "ideas" was also one of words, it is not surprising that Plato should have fallen into verbal fallacies. Nor is it difficult to see that his crowning argument is purely verbal and is but the expression of an instinctive confidence put into logical form.

Jowett speaks with calm confidence about Plato's failures, and the majority of scholars would agree that he is entirely right. Yet many philosophers would not agree—for the reason that there is no consensus of opinion as to what Plato's philosophy means. There never was a time when philosophers agreed on the interpretation of Plato's thought. They could only agree when Plato had been dead for six centuries, that Plotinus was all wrong in his interpretation. They could only agree in the nineteenth century that Schleiermacher was all wrong in his interpretation. In February, 1930, I learned that G. C. Field had written a commentary on Plato which showed "true independence of thought in all its fulness" and which, if its argument was correct, "would oblige us to surrender Professor Taylor's great commentary on the *Timæus*." Also it overthrew Professor Burnet's theory that Plato outgrew his funda-

mental theory of ideas. Then in June I read that Frazer had returned to the study of Plato and had proved "despite the work of Campbell, Lutoslawski, and Ritter, that the passage of years does not bring us much nearer to certainty, or even to a consensus of probability, on any of the great Platonic controversies." No wonder that even a friendly critic had to conclude: "It is extremely difficult to be anything but controversial where Plato is concerned."

The controversy is going to be indefinitely prolonged, for F. S. C. Northrop has sketched and is now elaborating an essay to show that all previous commentators have failed to perceive how mathematical Plato was. When this mathematical element is exposed, all previous analyses of Plato's doctrines will have to be made over. There is no consensus of expert opinion as to what Plato's philosophy means.

And suppose that a consensus could be attained in 1935. What effect would it have on any of our thinking about politics or ethics or psychology or religion or art or education or war or social betterment or prohibition or immortality? I can find no evidence that even these industrious interpreters would expect the least effect. They seem to be working, not for help with present-day reasoning, but for the mere solution of classical riddles. Only a very few modern philosophers would alter their opinions in the slightest if a complete canon of Plato's teachings were finally agreed upon. Only these few would consider that Plato's thinking could be verified in modern philosophy.

No philosopher's reasoning has ever been verified by a later generation. Examine, as an illustration of all systems, the history of Kant's ideas. No reasoner was ever more powerful or had a more profound influence. "Hardly any philosophical system of the nineteenth cen-

tury," we are told, "can be understood without reference to Kant. His great work absolutely closed the lines of eighteenth-century speculation and substituted for them a new method. This has prescribed the course of philosophical speculation in the present age."

Yet I doubt whether there is in existence any critical essay on Kant's system which does not inform us of the ways in which he has been misunderstood and of the ways in which he was mistaken. Salvator Brandi declares that for three-quarters of a century the attacks of the Neo-Scholastics have been based on a misapprehension; and S. Z. Hasan shows that the commentators on Kant have, for the most part, not understood him.

Kant was a mathematical physicist before he was a philosopher; he has been held in honor for his scientific knowledge; but d'Abro tells us that "Kant's knowledge of Newtonian mechanics was, to say the least, extremely poor."

The agile mind of a modern like Scott Buchanan can easily see, and is ready to declare without a quiver, that "Kant was not only verbally but intellectually confused."

Morris R. Cohen, one of the most penetrating and most respected of American philosophers, states that Peirce's conceptions are utterly destructive of the arguments which were fundamental to Kant's system.

Havelock Ellis recorded his estimate of the world's second greatest philosopher: "The man whose brain is hypertrophied and his practical life shriveled to an insignificant routine—the man of whom Kant is the supreme type."

Santayana's gorge always rose when he thought of Kant. Here is one of his descriptions of the character of Kant's mind as revealed in his transcendentalism: "It really expresses and sanctions the absoluteness of a barbarous soul, stubborn in its illusions, vulgar in its

passions, and cruel in its zeal. . . . It is nothing but a mass of foolish impulses and boasts ending in ignominy."

Bertrand Russell can keep more calm in his appraisal; he wants to be as kindly as possible: "Kant's philosophy is difficult and obscure, and philosophers still dispute as to what he meant. . . . He deluged the philosophic world with muddle and mystery, from which it is only now beginning to emerge. Kant has the reputation of being the greatest of modern philosophers, but to my mind he was a mere misfortune."

Of course an even longer list of verdicts against Kant would not prove that he actually was a misfortune or that his soul was barbarous or that his brain was hypertrophied. I have such a respect for the power of Kant's intellect that these judgments seem to me highly exaggerated, not judicial. But they persuade me that when I cut the pages of Kant thirty years ago I was comically deluded. For I was pulsating with the expectation of the charm of divine philosophy. If an angel had unrolled the scroll of future criticism, had shown me how the leaders of thought in 1930 were going to despise Kant, I should have felt like a neophyte who foresaw that his temple was to be converted into a scenic railway in an amusement park. I could not have credited such a prophecy. And perhaps my life was all the happier for having faith in the temple of philosophy and doing my devotions there for thirty years. Philosophy was not necessarily a bad place for me because it was going to be desecrated later.

But now—now in 1931, when Kant is ridiculed—what is a college doing if it recommends a student to spend some time on philosophy? What are the chances that philosophy, which has never hitherto been verified, is ever going to be verifiable? Suppose that we could organize a stock-market for intellectual occupations, and in

the competition of that market should issue shares in Philosophy, Inc.? It would then be useless to argue or hope; we should have to watch the tape and see what the quotations actually were. And this is a proper parable to illustrate what is actually being done in university curriculums. They are the exchange where scholarly subjects get a rating. On the floor of this pitiless market the stock of Philosophy has sunk from 157 in 1890 to 31½ in 1931. What evidence has any broker of university subjects that the stock is upward bound? Those who have faith in the rise are few and uninfluential. The big operators are bearish. If any young speculator wanted my tip, I should not dare to advise an investment in Philosophy. Nobody knows about the future of the stock. But the chances—the probabilities by which men have to be guided when they invest the precious days of youth—are none too good. Ask the seasoned investors who have watched the ups and downs of the intellectual market for the past forty years. Don't trust the salesmen who want to unload Philosophical stock; don't trust the brokers who merely want the commission on the hours you spend. The indications for the future of Philosophy, Inc., are decidedly bad—for the one plain reason that this book centers upon: *philosophy cannot be verified.* Its earnings are falling off every year.

You cannot trust any one man's report about the status of philosophy. Every man is partial, and his knowledge is limited. When you read the pieces of evidence that I report below, you will realize that they are out of context, that they have been garnered for the purpose of showing philosophy at its worst, that a similar list of good reports might be compiled. But try your hand at finding favorable judgments, *which are not made by persons who are allied with philosophy.* My quotations illustrate the fact that present-day philosophers

themselves testify to the impossibility of agreeing that any particular philosopher amounts to much.

F. S. C. Northrop: The evidence which Professors Haldane and Whitehead have emphasized is incompatible with the atomic philosophy which they attack. It only seems to be, because they commit the fallacy—etc.

A. d'Abro: Dr. Whitehead soon falls a victim to his own terminology.

Bertrand Russell: Bergson speaks of the interpenetration of the present by the past. This is mere mythology.

Paul Weiss: There are almost as many species of Pragmatism as there are so-called Pragmatists. Prof. C. I. Lewis has placed Pragmatism in its proper perspective. Not only does his book avoid the fallacies, but it does not even, like Dewey's, lean precariously on the results of special sciences.

Henry Hazlitt: What first strikes the reader who has any acquaintance with exact reasoning is the amazing looseness with which Mr. Babbitt, *as well as all the other humanists,* employs crucial terms. . . . It is impossible to take Mr. Babbitt seriously as a thinker.

Walter Lippmann: Adam Smith's . . . industrial philosophy . . . was soon exposed as a simple-minded delusion.

Charles S. Peirce: Leibnitz, this great and singular genius, did not understand that the machinery of the mind can never originate knowledge. . . . There is no danger that his chimerical scheme will ever again be overvalued. . . . The Hegelian philosophy is an anancasticism. . . . Never was there seen such an example of a long chain of reasoning—shall I say with a flaw in every link?—no, with every link a handful of sand squeezed into the shape of a dream. Or say it is a pasteboard model of a philosophy that in reality does not exist.

I can see no hope that any non-scientific philosophy is ever going to achieve a better fate than anancasticism.

III. The Great Philosophers Destroy All Previous Philosophy

If any philosophy had ever stood the test of time, so that most philosophers could now agree that it showed a way to wisdom, we should pay homage to it and should have hope of other philosophies. But every system has been overthrown by later reasoners. The philosophy of each century has gone down before the impact of a later philosophy as if it were one of a set of dominoes that had been stood on end and that knocked each other flat in a row.

Plato's system of "forms" was reasoned out of existence by his pupil, Aristotle, who, as George Boas describes it, "re-oriented philosophy away from the mysticism of Plato toward the naturalism of the colonials." The moderns—however much they may admire Plato's art and poetizing—continue to be oriented away from his reasoning.

Early in the seventeenth century Edward Herbert set up a philosophy of "Truth." Near the end of the century it was bowled over by John Locke.

Locke became a kind of pope of philosophy for a time, but after fifty years David Hume helped Berkeley to topple his reasoning to the ground. Now the consensus of judgment about Locke's central thesis is that expressed by J. B. Pratt: "It is not only false; it is the root of many hopeless vagaries."

Hume had his day. Huxley, so late as 1880, still admired him more than any other philosopher. But now Cohen proves that Hume lies prone: "His fundamental position seemed to me to involve flat contradictions."

Descartes's system was so powerful and subtle that it still fascinates some philosophers, but his fame cannot stand upright. It lies in the dust, so that J. E. Boodin is safe in pronouncing: "The physiology of Descartes

has been and remains the greatest obstacle to sound psychology and sound philosophy."

Kant stood like a pyramid for a century. You have seen how his reputation is now buried under such a heap of disdain as was never shoveled upon any other philosopher.

Herbert Spencer was the most towering philosopher near the close of the nineteenth century. His system is now so outmoded that only an archeologist can find the débris under the sands of modern indifference.

And now in 1930 the most quoted philosopher in the United States, by far the most influential one in education and sociology, is John Dewey. Men honor themselves by writing books to expound him, by making bibliographies of him, by contributing to a volume of *Essays in Honor of John Dewey.* We read that he "brushes all the great classical philosophical systems quietly aside." So mighty is he that he hardly has to exert himself to push all previous philosophy into limbo—he brushes it there; he brushes it *quietly.*

But already he has been swept contemptuously aside by an English reviewer who uses the critical duster with all the ease of the best British manner. Watch his graceful stroke as he sums up the worth of Dewey's essays in *Characters and Events:*

> They throw a most valuable light on the process by which a philosophy as idealistic as any that has come out of metaphysical Germany has been evolved out of James's pragmatism.

Dewey is therefore as idealistic as Hegel, whose philosophy was a chain of sand squeezed into the shapes of dreams. For my part, I suspect the reviewer is telling the truth. I fear that Dewey's philosophy is based on people who live only in Dewey's brain and whose motives

exist only in Dewey's kindly soul. I should guess that in 1950 Dewey will seem more of a misleading mystic than Hegel now seems to Dewey.*

No words of the most skilful writer could add anything to the impressiveness of the series of great intellects who have brushed all previous great intellects quietly aside, and have then been quietly brushed aside by the next comer. Well may Dewey say: "A certain tragic fate seems to attend all intellectual movements." It was no momentary pessimism that made Whitehead confess: "This reign of Reason is vacillating, vague, and dim." When he looks back over the list of philosophical speculations, he regrets that they have been "foolish, brutish, and nasty"; but he discerns "a tendency upwards" in nature, and bravely looks forward to a discipline of Reason. He is one of the very, very small fraction of educated men who can hope that the discipline will be furnished by any future philosopher who brushes aside all previous philosophies.

IV. The Philosophers Lack Faith in Philosophy

Half a dozen quotations from recent testimonies by American philosophers will show how general is the lack nowadays of any such faith in philosophy as animated the professors of the previous generation:

W. M. Urban: It is doubtful whether there has ever been a period in which man has understood himself so little.

R. B. Perry: The American movement at the opening of the present century revived a way of thinking which, in spite of its agreement both with science and common

*Five years ago I put in print the following prophecy about Dewey: "I will guess that a quarter of a century hence he will appear to be just as much blinded by social prejudice as ever Hegel was." Apparently I allowed too much time for the onrush of adverse criticism.

sense, had at the close of the previous century been consigned to the obituary columns of the most authoritative philosophical organs.

W. P. Montague: There was need [about 1900] for a definite campaign to deliver philosophy from the fog of confusion that threatened to obliterate it.... The hopes and fears of one's heart exert such hidden and potent influences on one's intellect that it is hard for anyone to be sure whether his conclusions are intellectually honest. At times I feel a sort of shame and self-mistrust that I should have come out with a philosophy so optimistic.

C. J. Ducasse: I believe that, in respect of method, philosophy should be like science.... Man has so far discovered only one trustworthy road to knowledge in whatever field—the road, namely of Scientific Method.

W. G. Everett: I have to confess that even today most metaphysical idealisms seem to me to have caught some fantasy of a dream-hour, which, loath to surrender, they have attempted to imprison in the chains of an ingenious logic.

J. E. Boodin: Modern philosophy got on the wrong track at the outset on account of a false psychology.... Present philosophy is a whited sepulchre, calcimined with a coating of science and mathematics, but within are the dead bones of the past, and the ghosts walk abroad.

In view of these judgments expressed by the philosophers themselves, it is no wonder that Irwin Edman should be severe on them. Most of them, he says, "have been unable to study life or reflect upon it." He explains why they have been ineffective:

American philosophy was the "philosophy" of teachers and of those with vested interests in an academic subject-matter. It was something taught.... It generated with extraordinary rapidity a technique and a jargon of its own.... Philosophy, from meaning a way of wisdom or a vision of nature and life, has come to

mean simply some points that have come up for discussion recently at meetings of the American Philosophical Association.

These modern complaints against philosophy were outdone half a century ago by the indictment of Charles S. Peirce, "whom James, Royce, Dewey, and leading thinkers in England, France, Germany, and Italy have placed in the forefront of the great seminal minds of recent times":

The particular series of important fallacies which have desolated philosophy must be closely studied. . . . Not so much by Kant's answer to this question as by the mere asking of it, the current philosophy of that time was shattered and destroyed. . . . The fifty or hundred systems of philosophy that have been advanced at different times of the world's history . . . are exceedingly interesting and instructive, and yet are quite unsound.

A century earlier Hume had announced the futility of philosophy:

The generality of mankind are not guided in these inferences by reasoning. Neither are the philosophers themselves. . . . Nor can the operation of such immense consequence in life as that of inferring effects from causes be trusted to the uncertain process of reasoning and argumentation.

Two judgments of Bertrand Russell would, in themselves, give pause to any wary undergraduate if he knew about them:

Ever since the end of the Middle Ages philosophy has steadily declined in social and political importance. . . . All traditional philosophies have to be discarded, and we have to start afresh with as little respect as possible for the systems of the past.

Dewey is revered because of his application of philosophy to social questions. Yet he knows that all previous philosophers have vitiated their work because they were unconsciously swayed by social prejudices:

> Philosophy did not develop in an unbiased way from an open and unprejudiced origin. It had its task cut out for it from the start. . . . It became the work of philosophy to justify accepted beliefs and traditional customs. . . . The great systems of philosophy have not been free from party spirit. . . . Since they have at the same time professed complete rationality, the result has been an insincerity, which was wholly unconscious on the part of those who sustained philosophy.

Thus Dewey arraigns all previous philosophy for upholding traditional standards; and it would seem, therefore, that he trusts his own philosophy because it tears down those standards. But only his disciples can understand why his zeal for destruction is less free from party spirit than the conservative zeal of his predecessors.

I wonder why some department of philosophy in a progressive university does not placard in all its recitation-rooms the calm estimate of philosophy that was made by Santayana:

> The whole of British and German philosophy is only literature. In its deepest reaches it simply appeals to what a man says to himself when he surveys his adventures, analyzes his curious ideas, guesses at their origin, and imagines the varied experience which he would like to possess, cumulative and dramatically unified. . . . Not one term, not one conclusion in it has the least scientific value, and it is only when this philosophy is good literature that it is good for anything.

There is a reason why Santayana's opinion may not be worthy of display in a college—that he was too much

of a poet and did not belong to the philosophers' union. If that is a proper reason, then I propose that the colleges advertise a bit of the dialogue from Plato's *Republic:*

Adeimantus to Socrates: Any one of us sees as a fact that most of the votaries of philosophy become strange monsters, not to say utter rogues, and those who may be considered the best of them are made useless to the world by the very study which you extol.

Socrates: I am of opinion that they who say so are quite right.

There may be a fallacy lurking under this section of my chapter. My proposition is that if philosophers are constantly at odds with one another, they are showing that philosophy comes to nothing. That may not be true. An essayist could doubtless make a strong argument to show that perpetual contradiction is not a proof of futility. I should have no prejudice against such an essay, for I am not arguing. I am only exhibiting the reason why educated people do, as a matter of fact (perhaps not wisely), suspect that philosophy is futile. I am only exhibiting some of the evidence that Whitehead refers to when he speaks of the common suspicion that philosophy comes to nothing: "The discord of philosophers, competent and sincere men, implies that they are pursuing a will-o'-the-wisp." The discord does, of a surety, make us think of the ignis fatuus. Though we are ready to grant that some philosophers may be Platos, we have no way of distinguishing between them and the monsters. And we must, like Socrates, agree that the best of the philosophers are useless.

V. Non-Philosophers Lack Faith in Philosophy

To quote many opinions of non-philosophers would be a waste of my space and your time. You might not feel

that anything was proved by the violent statement of Mencken that "metaphysics will be booted out of Academe."

But the great height and depth of the feeling which a majority of learned men have against philosophy is a fair consideration. It needs no proof, and I will not dwell upon it. I will simply quote the judgments of two eminent reasoners who were familiar with philosophy, who had devoted much time and energy to it, who in their young manhood felt unquestioning faith in it; but who came to believe that it was a despicable way of employing the intellect.

The first of these men was William Graham Sumner, the most influential professor who ever taught at Yale, the scholar who gave vogue to two words, *folkways* and *mores,* which are now fruitfully used by most reasoners about society. Nearly thirty years ago he attended a faculty meeting which discussed the wreckage of the department of philosophy: all of the full professorships had become vacant at once. He addressed the faculty in terms which were not recorded, but which are thus recalled by one who heard them:

Yale has now a chance to take the leadership of all the universities of the world, in abolishing the department of philosophy. Philosophy is an anachronism. It is just as bad, just as untrustworthy of serious regard, of a place in a university, as astrology or palmistry. It is a fake. I should like to see Yale now definitely go on record as abolishing the study of philosophy.

The second man whom I shall quote was Thomas Henry Huxley, the acuteness of whose judgment has never been surpassed in England. Fifty years ago he wrote a description of philosophy rolling a stone. He drew the figure of Sisyphus, who was condemned in Hades

to be forever rolling uphill a stone that always rolled down as soon as it was up. Huxley enjoyed the fable because he knew that the name of the stone-roller probably means "very sophic."

Generation after generation, philosophy has been doomed to roll the stone uphill; and, just as all the world swore it was at the top, down it has rolled to the bottom again. All this is written in innumerable books; and he who will toil through them will discover that the stone is just where it was when the work began. Hume saw this; Kant saw it; since their time, more and more eyes have been cleansed of the films which prevented them from seeing it; until now the weight and number of those who refuse to be the prey of verbal mystifications has begun to tell in practical life.

VI. Philosophy Succeeds Only by Destroying

Throughout this chapter runs the assumption that philosophy aims to discover truth by abstract reasoning, and does not submit to verification. That is the common understanding of the way philosophy tries to work. But if you accuse the next philosopher you encounter of trusting to mere reason, he will deny the charge. He will say something of this sort: "I don't rely on mere logic. I start with facts as much as a mathematician does. And I know that a correct conclusion must be in accord with facts. I don't trust in mere abstract reasoning." He will probably be correct. It is probably true that most modern philosophers do—in some sense or other—realize that their operations are subject to a check-up, or that their result is only a probability. In the early part of this chapter I gave plenty of examples of this common-sense attitude of many philosophers. I have not accused all philosophy of being nothing but abstract reasoning.

But I must here record, emphatically, that the accusation is brought against philosophy *by the philoso-*

phers themselves. When they are engaged in their eternal business of overthrowing all previous philosophy, they usually taunt their opponents with relying on mere empty logic. An illustration is Whitehead, when he speaks of "the problem set by the doctrine of evolution." He remarks severely: "This problem is not to be solved by any dogma, which is the product of mere abstract thought, elaborating its notions of the fitness of things." He cannot be aiming at a man of straw when he discharges those harsh words; nor would it be fair to suppose that he has in mind only occasional or erratic philosophers. If he is behaving like a gentleman in his dialectic, he assuredly refers to some considerable body of philosophers who are representative of a somewhat prevalent school of thinkers. He obviously has in mind the fact that many worthy philosophers *do* try to solve problems by "mere abstract thought."

The *Century* definition of transcendentalism is as follows: "The doctrine that the principles of reality are to be discovered by the study of the processes of thought." The definition is just one exhibit of a long array which might be made to show how often philosophers have been accused of relying on mere abstract reasoning.

A more inclusive exhibit, furnished by a higher authority, is Cohen's remark about "the great scandal of traditional philosophy—the claim of absolutely certain results in fields where there is the greatest conflict of opinion." The scandal is so notorious that philosophy will have difficulty in clearing its reputation.

By a most curious coincidence I began to read when this chapter was partially written *The Revolt against Dualism,* by Prof. Arthur O. Lovejoy, of Johns Hopkins. He is a master workman. He argues with a shrewdness and sanity that affect me as if I felt a fresh northwest wind blowing into a stuffy madhouse.

He describes with gusto the philosophical war, "the first grand offensive against dualism":

Many rival explanations of the nature of the error were devised. . . . Some of the most redoubtable early champions of the cause of naïve realism have now abandoned it; formidable new adversaries have multiplied in recent years. . . . "The metaphysical assault upon the dualism of mind and nature has been made in regular formation by Bergson's evolutionary philosophy, by neo-idealism, by neo-realism, and by pragmatism." (Quoted from the proceedings of the Sixth International Congress of Philosophy.)

He adds his quota of testimony to the folly of a large proportion of all philosophers:

The history of philosophy is strewn with the wrecks of supposedly self-evident truths which, when their full meaning was developed, proved to be in fact self-contradictory.

This unprecedented philosopher actually proposes to his profession that their first task should be to define their terms and to draw up a list of those propositions upon which nearly all of them can agree. He has faith only in a proposition upon which there is a general consensus of agreement, one which is valid *from any standpoint.* When he needs to show the absurd errors of his opponents, he appeals to the biologists and psychologists. He argues that if anything can be truly known it must be capable of verification, that "the attribute of common verifiability" is the only criterion of knowledge. He recognizes that there are "congenital diversities among human minds which render convincing argument impossible." He refers to "the plain man's prejudice" for dualism, and implies that his own set of mind may be a prejudice. If philosophy had always been this sort of reasoning, it

would have been the most useful pursuit in which men could engage their minds.

The task which Mr. Lovejoy sets himself in this book is of the sort in which philosophy has scored all its success—that of destroying something. I cannot learn that philosophy ever constructed any knowledge, but throughout its history it has done perpetual service by destroying false philosophy. Even Kant understood this fact:

> The greatest and perhaps the sole use of all philosophy of pure reason is, after all, merely negative, since it serves, not as an organon for the enlargement [of knowledge], but as a discipline for its delimitation; and instead of discovering truth, has only the modest merit of preventing error.

Mr. Lovejoy's particular aim was to slaughter Monism. There are so many species of Monism that no definition of one central doctrine is possible. For example, I have a couple of correspondents who are Monists in some sort of religious sense: they tell me that their kind of philosophy will furnish a useful religion and will exterminate all manner of vile fallacies that becloud the dualistic or pluralistic mind. Waldo Frank speaks of his kind of Monism with fervent devotion: "Let us passionately refuse all dualism." I presume that Lovejoy did not attack anything so sacredly valuable.

What he tries to exterminate is the sort of Monistic philosophy which argues that a penny may be round and have weight at the same time that it is elliptical and without weight.

Thus we are told by a philosopher sensible of the genuine implications of the monistic theory that when the same water appears warm to A and cold to B, we ought to "attribute literally" both temperatures to the water, and that the stick thrust into the pool does not simply *appear* bent; it *is* bent.

The Monists have striven to convert the world from its crude notion about round pennies and straight sticks to a philosophy that is superior to common sense. Mr. Lovejoy took up arms against that philosophy.

It would not do for him to rely on ridicule or to talk the language of mere common sense. He had to adopt the fearfully technical terminology of Monists, had to go into their arena and fight with their weapons. If, for instance, a Monist had argued about "the metaphysical ultimacy of the determinate fact," and had used his taste for cucumbers as a trivial illustration of this vast matter, Lovejoy had to rebut the argument with cucumberical ultimacy:

> This manifestly means that the event "this-philosopher-liking-cucumbers" has a fixed character which does not vary with standpoints. To be sure, it involves a relation between the philosopher and the cucumbers; it is from his standpoint, and perhaps from that only, that they are likable. If, therefore, the question about what knowledge is sought were that of the absolute gastronomic virtues of cucumbers *überhaupt,* we should find no answer to *this* question in the philosopher's eccentric taste. Purely gustatory propositions claim no epistemological objectivity.

Lovejoy patiently anatomizes the bewildering complication of terms and deductions that the eminent Monists have used; for example, he devotes nineteen pages of the most laborious and delicate surgery to the dissection of the seven possible senses in which Whitehead uses the term "simple location." This must have been exhausting toil for a mind like Lovejoy's, perhaps nauseating and all but intolerable. Yet he persevered until the seven senses were shown not to make any one sense. So he moiled through all the tortuous obscurities of the dozens of Monistic reasoners. It was a heroic labor and will

doubtless be useful in showing some philosophers how to reason better.

The result of it is just this: you and I can now feel assured that it is philosophically proper for us to think about the world in the way that all normal minds have always thought. Mr. Lovejoy has exploded the new mental world erected by a philosophy and has made the good old world of common sense once more respectable. We who have been rescued thank him.

We thank him specially for his last chapter, "The Nature of Knowing." It reassures us of the possibility that the simian mind may yet attain to something like sobriety and modesty. The reasoning about memory, as the proof that Monism is only a fancy, elevates us with the hope that destructive philosophy still has a mission. If it were not for occasional achievements of this sort by the human brain, we might have to cower before the possible doom that Prof. W. M. Wheeler describes:

> Roberts suggests that our enlarged forebrain, called by Herrick "the specific organ of civilization," may really have originated as a malignant tumor. . . . It would in no way be surprising if we learnt at last that the remarkable increase in the forebrain was to be in the end one great cause of the extinction of man.

Let the Whiteheads and Deweys ponder those words. They are not trifling. If a Whitehead passionately applies his philosophy to creating a universe of organism, or if a Dewey passionately overlooks the fact that his philosophy is his social prejudice, then he is doing his bit to increase the growth of a malignant tumor of abstract reason; he is contributing poison to human thought.

If we take philosophy seriously—as a useful mode of enlarging knowledge—we disregard all the evidence as to the tendency of modern reasoning. Philosophy has

had to retire from one position after another, always fighting rear-guard actions and never recovering any lost ground. Philosophy no longer occupies any defined position. Philosophers cannot agree as to what their business is: they cannot make a united claim that philosophy is either a guide to science or an aid to religion or a help in social studies or a diviner of truth which is not otherwise accessible or a profitable kind of amusement or a legitimate form of poetry or an attitude of mind. The steady retreat of philosophy, its increasing weakness in making a place for itself, the constantly increasing doubt about its function, the rapidly increasing distrust and ridicule which scholarship expresses for it—all are signs of a coming dissolution. No mode of thought has ever recovered after going so far toward disrepute. Any appraiser of academic values who predicts an upturn in the prestige of philosophy is—well, to say the least, he is erratic. He is like a prophet who should tell us that square-rigged ships will again dominate ocean traffic. We cannot prove that he is wrong, but we see the probability. The chance for a revival of philosophy is rather less than the likelihood that wind-power will propel the cargoes of the future.

The reason why philosophy appears to be doomed is brutally plain: in an age when all thought is learning to test itself by verification, philosophy cannot be verified. A philosophy that limited itself to a consensus of all normal reasoners would not be a separate field of thought. It would be only the effort to think scientifically.

The very essence of philosophy in the past has been its proud unwillingness to be scientific. It has been positive in its conviction, incurious about probability of error. It has been almost pure thobbery. If it is now changing its nature, it is committing suicide. Whatever bears its name in future will not be philosophy.

CHAPTER XIV

Scientific Method

A chapter on this subject might be a mere technical essay, detached from pocketbooks or the love of children. While I write I shall be thinking of taxes and education. For our school system is largely directed by a faith that there is such a thing as "the method" of science and that this wonder-working system can be applied to the art of teaching. The chapter will be in three parts: first, the strong tendency of all good intellects to believe in a myth (especially a logical or a scientific myth); second, the possibility that "a general method" is a myth outside of physical science; third, the possibility that "a method" is a myth even in the physical sciences.

I. Powerful Intellects Tend to Put Faith in a Myth

Human imagination is unable to realize what the long history of theological reasoning means. A modern theologian looks back over five thousand years of the wreckage of imposing thoughts about religion; he sees that giant intellects exercised themselves to the limit of their power, believed that they were erecting durable monuments, and yet were seen by every puny intellect of some later age to have been mere dabblers in the shifting sands of thobbery. If this grisly record of inescapable futility were truly realized by a modern professor of divinity, he would know that he too must fail. Better minds than his, minds far more keen and wise, have earned from the succeeding centuries, for all their prodigious efforts, no more than indulgent smiles. No exception is known in all history. Therefore the probability is five thousand to one that all theological reasoning of 1931 will be only

another wreck in the wake of the destruction that has always hitherto overtaken similar ventures. The theologian's imagination is too weak to recognize this probability. He cannot bear to look at the horrible thing. So he turns his back upon it and presses forward to the oblivion that unfailingly awaits his kind of labor.

A non-religious philosopher can realize the probability quite clearly. To him the oblivion that buries all theology is as obvious as a mountain in clear midday. But ask him, while you stand at his side and stare at the wreckage of theology, to look back upon the unfailing destruction that has overtaken every constructive enterprise in philosophy. His imagination cannot realize what that invariable history of ruin means. The probability is five thousand to one that he must fail if he creates a new system. But his mind cannot tolerate the thought of the dreadful chances against him. So he looks another way. He busies himself with Hegelian ropes of sand. He will be only another unsightly speck on those desolate shores where every previous system of philosophy has been a broken bubble of foam.

To a sociologist the ruin of theology and philosophy is plain. He marvels that such reasoners will not face the probability which confronts them. But ask him, while you are sitting together and pointing out to each other the doom that is so obvious elsewhere, whether he has ever estimated the chances that he may also be blind, in a similar way, to the destruction that is in store for him if he trusts to "the method" of science. He will not understand you. So you name a few of the scholars who, before 1900, tried to fit their emotional subjects to "the method" of science. You inquire whether one of them succeeded in finding the method. He catches your drift, but he can only reply that you don't understand. "There is no hope for us," he will say, "except in a scientific method. We

must find a method or perish." He will not look back at the wreckage that covers the course of the social sciences. The need for the scientific *attitude of mind* so urgently possesses him that he cannot attend to anything you wish to ask him about "the method."

You might give him an illustration—Sumner and Keller's *Science of Society,* the most comprehensive account of human institutions that I know of, a storehouse of information displayed with clarity and wisdom. The authors have arranged their material systematically; they take a scientific attitude; they have a methodical way of reasoning about society—an evolution by the changes of customs. So we might say, in one sense, that they follow a scientific method. But the method is merely their own particular way of presenting knowledge. They have not appealed to any vague and mysterious process which is known as "the methodology" of science. They do not assume that the natural sciences proceed by "the method" that is common to them all. If you try to make this distinction for the ordinary sociologist, he will not understand you. His mind is engrossed with "the method" of all science. As soon as you mention any particular mode of studying, he thinks you mean "the method" which fills his brain.

I have never made out just what he means by this expression. Probably he thinks of some all-embracing plan of operations similar to Francis Bacon's inductive method: (1) gathering data, (2) assorting them, (3) drawing inferences. Perhaps he thinks of some system of testing his questions and judgments. Later in this chapter I will describe what he must mean if he has anything definite in mind. For the present we need not try to understand his meaning; we have only to note the fact that he is possessed by some notion of "a method" which is supposed to be the magical key to success.

Ask a sociologist to exercise his imagination upon the mountainous fact, the most prominent fact in the history of intellectual labor, that the mind of man has always been possessed by myths. He will be impatient. "Of course I know the fact," he will retort. "Why do you want me to use my imagination on it? I know that the human mind has poured from itself a profusion of Gods, of metaphysical nonentities, of baseless creeds, of vaporous theories. I know that these Gods and theories have seemed more real to the human brain than the fact that men are selfish. I know that the human mind has never been interested in facts, that it has hardly any power to observe facts. I know all this. That is precisely the reason why I abominate philosophy. I know that it leads to the end of the rainbow. Our only salvation is in teaching ourselves to be scientific. We shall get nowhere in the social sciences until we adopt the scientific method." He closes strong on *method.*

You persist with your request: "I asked you to use your imagination. If you will do that, you will see that men have not yet ceased to be obsessed by myths. The human intellect was not transformed after the publication of *The Origin of Species* in 1859. It was not altered by Einstein's Special and General Theories. It has not been lifted out of itself by the Uncle Sam theology of the Chicago Divinity School. There has never been a year or a decade in which our intellect jumped across a chasm and escaped from its mythological self. It is today what it has always been."

"Quite right," says the sociologist. "Look at Fundamentalism, at Christian Science in Massachusetts, at the superstitions in Los Angeles, at witchcraft in Pennsylvania, at magical recipes for getting education or health. Certainly the world is as superstitious as ever."

You persist in your hope of persuading him to use his

imagination: "The superstitions that you point out are all in *other* people, ignorant and non-intellectual people. Can't you imagine the possibility that you, your very self, are as prone to mythology as a Pennsylvania hexer?"

The sociologist will probably think you have gone mad. Probably he will shift the subject to something that is down on your mental level. But if he should happen to have some respect for your ideas about other topics, he might be willing to listen further to your plea.

So you continue: "Of course your mind is not occupied by any fancy about spirits beyond the clouds or witchcraft or magic. But can you suspect that it is still apt to harbor an agreeable myth which might come disguised in scientific clothes?"

He would agree to that possibility—in the same spirit in which he would agree that perhaps he was insane, because no man can prove his own sanity.

"Then stretch your imagination till it embraces all the theologians and philosophers since Plato's time. Realize that these were the choicest intellects. In every age the intellects that had most power to *generalize* were the ones that were most superstitious. The scholastics of the Middle Ages spun their thoughts with a skill that was irresistible. All lesser minds were overpowered by them. The scholastics were so utterly possessed by some assumption—some preliminary axiom—that Socrates himself could not have persuaded them to look at their fundamental fallacy. It is the most powerful *generalizing* minds that have always been deepest in error. Now, your mind is powerful. It can *generalize* about the social sciences. It can see the folly of trying to study human institutions with any emotional bias. It can see that, as a *general* truth, no progress will be possible until scholars adopt the scientific attitude of caring only for verified facts. Do I state the case correctly?"

"Yes, yes. We must be scientific or give up the ghost."

"You must be scientific. That is your fundamental assumption. Then you take a logical step—only one short step. You say that you must have 'the' scientific method. Have you ever stepped outside your generalizing and your logic, ever opened your two eyes, ever examined with real curiosity this object that lies before you—this METHOD?"

The sociologist scowls, mystified and thoroughly bored. He cannot see why your query is worth an answer from a sensible scholar.

But you continue. "I think it possible that your faith is only the latest form of mythology. For I cannot see any such thing as this deity of METHOD in which you put your trust. You point to it and write essays about it and frame a creed about it, but my eyes look on vacancy. I cannot get my senses into contact with this method that you revere with capital letters. I don't deny its existence. I may be blind or perverse. But men far more experienced and discerning than I are equally blind. May it not be possible that you, like all the generalizing minds of history, are being deceived by an assumption? If there is such a possibility, you ought to feel some curiosity about it. You ought not to stare so contemptuously and behave like a Jonathan Edwards listening to a Bob Ingersoll's talk about the vacancy called hell. Use your imagination. There ought to be some pleasure in going outside of your axioms and seeing whether 'the' scientific method exists."

There is not in the world a devotee of scientific method for the social sciences who would respond to such an invitation. The mind of every devotee has formed within itself a vivid and detailed picture of a scientist using "the" scientific method, and you could no more enter his brain and shatter the image than you could blow up a

mirage by exploding dynamite at the point from which you see it. That axiom lies remote from every attack, impregnably enshrined in the adamant of preconceptions. The mind that contains it is no more able to destroy it than St. Augustine could have set a torch to his City of God.

No man can prove that scientific method is a myth. The term is in universal use; it clearly refers to some set of practical devices by which students arrive at knowledge. Probably a majority of scientists would say that they had "a method." But there is a respectable body of doubters, whose opinion is worth examining. Even if the learned world should be able after a number of years to make some definition of the method of science, it may prove to be far more vague than it is now supposed to be. There is a possibility that scientific method, even if it exists and is definable, can never be transplanted beyond the exact physical sciences. Perhaps scholars who look back on our era a century hence will marvel that good minds should ever have cherished the singular myth of "a scientific method" for investigating the operations of emotions in society. Such a possibility is an entertaining subject for every mind that knows what curiosity is.

It is a highly practical subject. If the methodizers were simply reasoners detached from the world's business, no one would need to worry about them or even to think of them. But they are zealously stirring up opinions about legislation, about programs of social betterment, about education. Vast sums of money and uncounted millions of precious hours of the lives of young people are being staked on enterprises engineered by "method." If a psychologist announces that he has demonstrated something by his "rigorous scientific procedure," we listen to him as to a high priest. We change our treatment of criminals; we revise the curriculums of our schools. We

gamble on a scientific method. Any possibility that the method is a myth ought to be examined.

No one can begin to make an examination until he has realized that the strongest passion of the intellect is for a generalization, a formula, a basic creed—for some myth. If you ask a sailor about the weather, he will tell you that the moon causes the changes. Ask a farmer about the best time for planting crops or branding calves, and he will refer to the moon. These hard-headed men could never understand your skepticism, nor would they feel any interest in a proposal to look at a chart on which the phases of the moon were correlated with records of weather and growth of plants. The exhibition of facts has no power to shake a man free from his dogma. Always it is some simple generalization that enthralls the mind, some basic belief from which all conclusions can be drawn. The logical simplicity of the myth is what our souls crave.

A little story told by Weismann illustrates the fact. He says that Aristotle thought there were eight legs on a fly and recorded the number in a book. For two thousand years the scholars were content to repeat the number. Nobody was ever curious enough to look with his own two eyes at the under side of a fly and count the six legs that are actually there. Our eyes have no appetite for seeing what is in front of them; they prefer to be told by the generalizing mind what they are supposed to see. It was the opinion of W. H. Hudson that "an observer is a rarer thing than a genius." So there is ground for suspicion that the scholarly mind, confronted with the success of science, will not feel any interest in observing science, in actually seeing the legs upon which it walks. There is some likelihood that such a mind will tell its eyes to look at the METHOD of science, and that the eyes will gladly obey.

If the eyes of a nation are directed at a bit of a logical slogan, people will see the logic and neglect the most obvious facts of daily life. If a rag of propaganda is painted a bright red with some pigment of emotion, all eyes will see the color that they are told to look at, and will remain blind to the plain shape of treachery. If a glorious generalization like "equality of opportunity" is preached with sufficient fervor, all eyes will see it as an ultimate truth in education; nobody will detect the enormous fact alongside it that our children are robbed of education.

II. The Possibility That "a Method" May Be a Myth Outside the Exact Sciences

"Science" is the word with which men conjure nowadays. If any mystic or faker wishes to gain a hearing, his best chance is to claim that he works by a scientific method. Three years ago the publishers of a book about life after death advertised it in the *Nation,* a journal that is supposed to circulate only among intellectual and skeptical people. The advertisement, *for this class of people,* ran thus: "Do you really know what happens when you die? Do you know what science has actually discovered of the spiritual world? Here is a book which tells what has really been demonstrated concerning life beyond physical death."

Sir Oliver Lodge is a real scientist. He argues, from his knowledge of science, that the existence of the ether cannot be rationally questioned (though most physicists do question it), that ether is the seat of all energy, that human beings are "permanently associated with ether," and that therefore they are as eternal as ether. This argument was prominently displayed as a feature article in the New York *Times* Magazine. It would hardly have been fit to print if it had not been written by "a famous British man of science."

"Science" is the magic name that now compels awe when it is uttered. By the use of it Mary Baker Eddy made a fortune and founded a wealthy church. Bishop Brown has called science "the real Redeemer, the real Savior-God, the real Christ." He confidently announced that after the coming economic revolution "the priest will change into a scientist." Henry Pratt Fairchild, professor of sociology at New York University, explained in the *Forum* for May, 1928, what science really ought to mean today:

I maintain that this central place of science in the scheme of Christianity was intended by its Founder *from the beginning,* and is inherent in Christ's own account of his religion as he expounded it to the people of Palestine. In brief, I propose the thesis that the Holy Spirit, the third person of the Trinity, *is* Science.

In 1930 Donald Fuller, Chairman of the Advisory Group for the Campaign for Good Citizenship, sent to "a selected list of educators, publicists, and community leaders" a pamphlet advertising a purpose that was endorsed by prominent university officials. It pleaded for "a new science":

Psychologists have made some progress . . . but they have acquired little knowledge as to the nature of the emotions and their relation to human progress. . . . The study of the emotional nature of man should be a separate science.

This pamphlet is an indication that if a man wants to gain a hearing for uplift work he must appeal to science. Men will consider any proposal worthy of attention if it puts "Science" on its letter-head.

If men do not like the theory that they are descended from an ape-like ancestry, Henry Fairfield Osborn has

only to announce his "emphatic belief," as a prominent scientist, that the theory is a myth; then his words are broadcast in the newspapers, and men think they are freed from a humiliating ancestry. If he speaks in the name of science, men heed and believe.

The word *science* invades all fields, dominates all schools of thought, fascinates all sorts of reasoners, sways all kinds of listeners. Only the unusual reader is so wary as to ask what the word means. Messrs. Osborn and Fuller and Fairchild and Lodge do not have to define science; they merely have to use the word. The public stands uncovered and says amen if anyone solemnly invokes the name of this Holy Ghost of modern reason.

In fact, the spell of the name is so potent that it affects even the men who do not bow the knee to this divinity. Several of these rebels against the domination of science have written books, not against the name, but against *science itself*. They argue that science is a false god. They conceive, for example, that if a Fairchild elevates something to the Trinity, and if he declares that this something is science, then science has been elevated and is a usurper. But it seems more probable that only the word has been made divine. There is no proof that the actual system of verified knowledge has been sanctified in an improper way. No one has explained how it would be possible to put jacks under this whole body of universally recognized knowledge, to transport it, and to set it in the temple of a new religion. But the name, "Science," could easily be so dealt with. The probability is strong that only the name is being debauched by the obscene rites in which men pompously think without a desire to be verified. Presumably it is nothing but a word that is reverenced amidst the incense of thobbery.

The fact of the worship of that word is what concerns us here. No book is needed to prove that the cult extends

to all parts of modern thought, driving thousands of fine intellects to orgies of opinion and belief. If we suppose that such a widespread habit of devotion is confined to unbalanced persons, we shall belie the whole history of the way the human mind works. Recall that stern passage from Hawthorne in Chapter III:

> Those who take upon themselves to be leaders of the people are fully liable to all the passionate error that has ever characterized the maddest mob. The wisest, calmest persons of their day were the latest to confess themselves miserably deceived.

Ask any reliable historian to tell you of a period when passionate mental error was not shared by the leaders of thought. He will tell you that there has never been such a period. He will ask you how such a period would be possible, since the errors have originated with the leaders. That fact is open to view in every decade before 1900; it is palpable, undisputed by any real student of civilization. Why is it not possible that the leaders of thought in sociology and educational matters now are as liable to passionate error about scientific method as the corresponding men were in 1890 and 1790 and 1690? The possibility is at least worth considering.

As an indication of how the pride of reason works in lively minds that strive to think scientifically about social subjects, I suggest four examples of four different types of men in four different environments. Each man achieved success by his power and was acclaimed for his keenness of intellect.

1. John Quincy Adams was believed by Brooks Adams to have had "one of the most powerful scientific minds of his age." He thought out a scheme for improving American social conditions by selling public lands and devoting the proceeds to carrying out high ideals. His conviction

was that "the Creator thinks according to certain fixed laws, which we call scientific laws." A few days before he died he wrote in his diary an estimate of what his brain might have done for society:

> If my intellectual powers had been such as have sometimes been committed by the Creator to single individuals, my diary would have been, next to the Holy Scriptures, the most precious and valuable book ever written by human hands, and I should have been one of the greatest benefactors of my country and of mankind. I would, by the irresistible power of genius and the irresistible energy of will and the favor of Almighty God, have banished war and slavery from the face of the earth forever. But the conceptive power of mind was not conferred upon me by my Maker.

This able statesman, after a long life in public affairs, still passionately believed in the power of reason to circumvent the greed of politicians which he had himself described as like the thirst of a tiger for blood. He thought that a remedy for political evils could be devised by the right sort of conceptive power.

2. Henry Adams's Maker conferred upon him the conceptive power in a high degree. He was an able historian, a successful professor of history, whose mind was so highly endowed that it reached out to the most advanced science of his day—the work of Willard Gibbs in deriving a formula for the properties of mixed metals. Henry Adams went to work on the mathematics of the development of thought. "Any schoolboy," he wrote, "could plot on a sheet of paper the points through which the curve of thought passes." He charted the "phases" of "this ethereal current"—almost horizontal up to 1600, rising a little by 1700, curving more rapidly upward by 1800, and thence becoming almost vertical. Yet no historian now supposes that such a mathematical method represents any

conceivable way of dealing with the "force" that is called thought. The book in which Henry Adams recorded his method is only an intellectual curiosity.

3. Upton Sinclair has one of the most brilliant minds in the United States. He is a novelist of distinction, a man of high ideals, a reasoner about society who is read with admiration by liberal thinkers all over the globe. He is confident that his conceptive power can, by a scientific process, understand what is wrong with civilization and what the remedy is:

> I have devoted my life to analyzing the causes of the suffering to find out if by any chance there may be a way of escape for future generations. I have found that this is the case; the suffering is needless; it can with ease and certainty be banished from the earth. I know this *with the knowledge of science*—in the same way that the navigator of a ship knows his latitude and longitude.

Sinclair has no need of the diffidence that guided Darwin and Einstein. He does not need to be verified. Curiosity would be a hindrance in his thinking. He knows absolutely within his own clear mind, knows with ease and certainty.

4. Utterly different from this radical theorizer is the great Polish engineer, Count Alfred Korzybski, author of *Manhood of Humanity*. In his preface he thanks eleven well-known persons who helped him to prepare the book—among them James Harvey Robinson, Charles P. Steinmetz, E. A. Ross (the eminent sociologist), and E. H. Moore (who was for thirty years head of the department of mathematics at the University of Chicago). The book was praised in the loftiest terms by Cassius J. Keyser, formerly head of the department of mathematics at Columbia University, who devoted the two climactic chapters of his *Mathematical Philosophy* to Korzybski's reasoning

about social improvement, making such statements as these: "This conception of human engineering embraces whatever may be intelligent in the promotion of science, in the work of educational leadership—in all the affairs of statesmanship big enough to embrace the world. . . . The conception is momentous, immeasurably important."

Korzybski's engineering plan ran thus:

> The social sciences have not discovered what man really is. . . . I define humanity, in the universal tongue of mathematics and mechanics, to be *the time-binding class of life*. . . . The science of Human Engineering must be built upon the scientific conception of mankind. This conception radically alters our whole view of human life. . . . It is all so simple if only we apply a little sound logic. . . . The revision of our ideas must be made by engineering minds. . . . I have no doubt that my conception is to be the base, the guide, the source of light, of a new generation. . . . Mathematical analysis elevates our point of view above passion, above selfishness in any form, and therefore it is the only method which can tell us genuine truths about ourselves.

And how have the best minds received the guiding light of Korzybski? The signs are that most of them feel no more respect for it than Prof. N. J. Spykman expressed in his criticism five years ago: "Count Korzybski's book is one of the most perfect illustrations of scholasticism that have recently seen the light of day."

These four cases may not indicate even a probability about the usefulness of a scientific method outside the physical sciences. Even a hundred more of them might not establish a strong probability. For the man who gathered them might not be aware of how prejudiced he was and of how much he had selected cases to justify his prejudice. But can cases of the opposite sort be discovered—examples of a scientific method in social reason-

ing that have stood the wear and tear of twenty years of criticism?

Some day *The History of Scientific Method in Social Studies* is going to be written. Presumably it will be a melancholy chronicle. If it now existed, I should merely have to refer to it as evidence of the possibility that the present faith in scientific method may be a delusion. It is conceivable that about 1929 the human intellect crossed some boundary and passed from all its previous mode of error to a region of scholarship where the leaders of thought are not deluded. We are now enveloped in the thick smoke of controversy and cannot see where this terrain of method may be. Proof will not be available for ten or twenty years.

If we go back to 1870 and follow the course of the Evolutionary Method, we shall be in clear air. No one disputes that Darwin's way of working attained the most glorious success ever recorded in a department of science. Ten years after Darwin published his theory it had captivated the minds of the leaders of thought in all branches of scholarship. The men most eminent for their knowledge and their power of clear thinking were entranced by the success of Evolution. They thought it was a method that could be applied to every kind of research. For thirty years the minds of a large proportion of students in all fields were possessed by the faith in the Evolutionary Method. I will give a few illustrations. They will not reveal their meaning unless you keep constantly in mind the one significant fact: the scholars mentioned below were acknowledged leaders in their day. It is hard to remember that. When we look back at the passionate hopes of half a century ago, when we see how gullible and frantic scholars were, we inevitably tend to think of them as inferior; they look outlandish; they do not seem like the wary and powerful thinkers of today.

Yet they were quite the mental equals of any scholars of this age. If they lived now, they would be the intellectual giants now. If they, in past decades, made errors, they are proof of the possibility that the progressive methodizers of our day may be mistaken.

Only two years after Darwin's *Origin* appeared the philologists seized upon his method as a guide and deliverer. Schleicher published an evolutionary method. His ability can be measured by the estimate of W. D. Whitney, who attacked the method when it was only fifteen years old and who later became one of the world's greatest students of language:

> Schleicher's name cannot be uttered by any student of the present generation without respect and admiration. No one can desire to remember aught of him save his immense erudition, his ardor in the pursuit of science, his critical acuteness, his liberal and independent spirit.

Yet Whitney was obliged to remember, and to tell his readers, that Schleicher's reasoning about an "evolution" of language was false and hurtful to philology. Whitney and his generation perceived that Schleicher had not discovered a method, that he had been deceived by a mere metaphorical comparison.

The sociologists were soon following the Evolutionary Method. A whole school of them explained society as a kind of organism, of which each individual is a cell; they traced the "evolution" of this social body. But in 1873 Herbert Spencer showed that they had been deceived by a mere analogy: in an animal the cells are unconscious, and their individual welfare is of no moment; but in a society the whole body is unconscious, its welfare is of no moment, and it is the individual's welfare that counts.

In 1894 Benjamin Kidd wrote his *Social Evolution* to prove that Spencer had utterly misconceived the nature

of society and evolution. It appeared that Spencer had confused the "social organism" with the "State," and that all his reasoning was therefore false to a true science of sociology and pernicious to human welfare. Kidd was a pillar of clear thinking in his day: his book was widely used in college classes; he was invited by the *Britannica* to write the article on Sociology for the edition of 1911. He called sociology "a true science," and he was in line with a great body of the best thought of his time. He had no doubt that he was originating a method which would do for sociology what Darwin had done for biology.

His hope was short-lived. In 1918 he seemed to deny most of what he had triumphantly proclaimed seven years previously. All his ardent thinking for a quarter of a century had returned to dust. Citing Kidd in a modern seminar of sociology would be as bad form as to speak seriously of More's *Utopia.* Yet if you ask a present-day sociologist why his faith in a scientific method is better founded than Kidd's, he gives you no answer. He thinks you are too innocent to profit by an answer. For he knows, somehow or other, that Kidd was an incompetent enthusiast. He knows, in some mysterious way, that he himself has mounted to an intellectual sphere far above Kidd's, where scholarly hopes are not blasted.

In 1925 A. N. Whitehead based his theory of an organic universe on the evolution theory. He informs us that

> The main work, proceeding during this pause at the end of the nineteenth century, was the absorption of this doctrine of evolution as guiding the method of all branches of science. . . . The modern doctrine of evolution thus cries aloud for the conception of *organism* as fundamental for nature.

The cry of the doctrine—so loud in Whitehead's ears—has not been audible to many thinkers. I shall be very

curious to learn ten years hence how many scientists or philosophers have heard it. Possibly even the venerable Whitehead will seem only a sort of unmentionable Kidd by 1950. The history of deep thinking about methodology is crowded with cases that are equally incredible to contemporaries and equally monotonous to successors.

The strength of the allurement of the evolutionary method is quite inconceivable to those not possessed by it. Henry Adams described it feelingly in his communication to the American Historical Association in 1909.

> You may be sure that four out of five serious students of history who are living today have, in the course of their work, felt that they stood on the brink of a great generalization that would reduce all history under a law as clear as the laws which govern the material world. . . . No teacher with a spark of imagination or with an idea of scientific method can have helped dreaming of the immortality that would be achieved by the man who should successfully apply Darwin's method to the facts of human history.

Darwin's method has not yet been successfully applied. Seventy years of the dreaming and striving of hundreds of the most ambitious historians have not been able to transfer evolution from biology to history. In 1903 Bury declared, with buoyant assurance, that "history is a science—no less and no more." Yet his own way of working and his later comments on the nature of history make his profession seem more of an art than a science.

And today his bold assurance seems childish to historians. Their hope of a scientific method appears to be flickering out. Sidney Hook, though he asserts that his pragmatic method "has the same claim to objective validity as the physical sciences," denies that the *development* of similar institutions is important, and his *Critique*

opens with the statement, "There is no common agreement as to a definition of the historical method."

Oswald Spengler's notion of history is the opposite of scientific. He says that historical knowledge cannot be gained by learned investigation or by any rational procedure, but only by intuition. Any trust in scientific verification he considers a mark of a declining civilization.

Spengler is a mystical extremist, whose ideas carry little weight, but James Truslow Adams has such a normal and wholesome mind that his judgment probably represents the majority opinion of historians today. It is no halfway opinion. He expressed it in the *Yale Review* for December, 1929: "I personally believe that it is sheer snobbery to speak of history as a science, a pretense springing from the desire of practitioners to rank themselves among the popular aristocrats in the kingdom of knowledge."

Harry Elmer Barnes has told the historians what their method ought to be. In a large book, *The New History and the Social Studies* (1924), he urged upon his fellows that psychology was the way of science which they must tread if they were to accomplish anything. Especially he has emphasized for biographers that psychoanalysis is the great necessity for understanding characters. All biographies written before Freud illuminated science are nothing but "rhetorical goose-eggs" in his opinion. Barnes is by no means alone in thinking so. We have had a school of psychoanalytic biographers. But James Truslow Adams puts their "scientific" in quotation marks and calls their reasoning about this form of scientific method "sheer drivel." He affirms that Freud's own effort at biography is "a phantasmagoria of incredibly unscientific assumptions." He makes bold to say of Barnes and Harlow and O'Higgins that their "half-baked knowledge is merely parading under the name of

science." Most of the reviewers of the Barnes genus of history and biography express the same estimate in more guarded terms.

In 1925 Herbert Croly wrote about "the hazardous claim" that science can reduce to order any of the methods of studying social forces:

> For more than a hundred years philosophers have written books on human nature in its social and political manifestations which pretended to the virtue of being demonstrably scientific. Yet their successors have almost always denied the pretension. . . . The formulas which pretended to express some necessary human behavior really *vindicated* some special activity. The suspicion grew that they were being imposed upon credulous opinion as actual science, not because they were capable of verification, but in order to hide a dogma or an interest behind the screen of scientific authority.

Mr. Croly wrote this as an introduction to a book by his friend Eduard Lindeman, entitled *Social Discovery,* published under the auspices of the *New Republic.* Croly recognized the peril of the effort to discover a scientific basis for sociology. He recognized that "the new sociology," which had seemed so dynamic and promising, was only a pitfall. But, in spite of his knowledge of all the previous failure in the effort to find social laws, he had confidence that Mr. Lindeman had avoided the pitfall. And Croly is considered by Walter Lippmann "the first important political philosopher who appeared in America in the twentieth century." Croly spoke thus of the scientific basis which Lindeman had discovered:

> His hypotheses about social conduct are capable of objective verification. . . . Its value depends upon its success in explaining a method. He sees the need of performing for the social sciences a task analogous to that which Francis Bacon proposed to perform for the

physical sciences. He tries to clear away some of the mythology and astrology which interfere with the ability of educated human beings to consider what the behavior of man in society really amounts to. He indicates *as method* that which will in his opinion help them to penetrate a land which has proved to be so deceptive to so many previous travelers.

This is the everlasting hope of the seekers for a method: they want to be a Bacon or a Newton or a Darwin, opening up a glorious new road of science; they see that all previous methodizers have been mere astrologers. Lindeman's road was the way of psychology:

Social groups are describable only in terms of psychology. . . . The group can be studied and interpreted only psychologically. . . . There is no such thing as a separate ego; individuals are created by reciprocal interplay; our whole study of psychology is being transformed; the whole study of sociology is destined to be transformed in like manner and for like reason.

Seven years have elapsed since that confident prophecy was printed. I cannot learn that any transformation has yet begun. The Lindeman method begins to look like another example that some Croly of 1970 will point to as one of the continuous series of the delusive hopes of a method.

From Marx to Lindeman the hope has been undimmed; the result has been blank failure. Marx is commonly credited with being the most rigorous of the systematic reasoners about the nature of society, but is now commonly conceded to have been thoroughly unscientific. So sympathetic a judge as John Spargo (who was once an admirer and disciple of Marx) now admits that "there is hardly an important sociological or economic generalization formulated by Marx which stands today and holds the credence of intelligent minds."

Dr. Theodore Abel has searchingly examined the methodology of four leading sociologists of Germany who have aimed to be scientific since Marx—Simmel, Vierkandt, von Wiese, and Max Weber. All four pass muster on the first test: their subject-matter is adequate and shows that sociology may possibly be a science. Only two pass the second test; only one passes the third test; not one of them can pass the fourth test. Hence sociology may some time be a science, but no method for it has yet been worked out. Always the method is in some man's grasp, but it is never captured.

J. H. Randall, Jr., has drawn (in *The Making of the Modern Mind*) a word-picture of the phase of the eternal quest for method when psychology tore down the illusions of evolution. It seems to apply to every phase of the quest.

What the system-builders had created the critics tore down; in economics, in anthropology, in sociology, in political science—in every field the best minds were coming to feel that the sciences so carefully erected and so confidently proclaimed in the seventies and eighties were but shams and impostures.

If the record of all endeavors for scientific method during three-quarters of a century shows only shams, if every decade of scholarship has looked back on previous scientific method as impostures, it is hard to see much probability that any sort of scientific method will ever be discovered outside of the strictly physical sciences.

J. J. Spengler, of Ohio State University, has dared to prophesy, without any *if*, that no scientific method will ever be invented for social studies:

No amount of pretended exactitude or assumed impersonalism can transform social science into physical science. The social scientist, therefore, is condemned to

be an artist who must rely on common sense instead of upon esoteric methodology.

My own impression whenever I hear praise of methodology is that the speaker has no real curiosity about some specific puzzle that he wants to solve. Every investigator in the natural sciences has been wrestling with a very definite problem; the solution has eluded him; he has been forced onward by conditions for which there is no formula; he has been driven by curiosity into experiments for which there is no model. But the man who believes in some methodology never sounds as if he was intent upon a baffling enigma. He sounds as if he enjoyed an awesome formula with which he hoped to secure the reputation of being a new Bacon. He is not, like Darwin, puckering his brows over some nasty little barnacles. He is building a stately lighthouse, building with pasteboard, and hoping that the paper will turn into stone.

III. The Possibility That Method Is a Myth Even within the Exact Sciences

In Chapter III we learned on Santayana's authority that the human mind naturally breathes its own atmosphere of myth, and we also learned there from a wide consensus of authority that the mind is passionate. Our reason loves some undefined and mythical opinion; it loves, with its deepest instinct, to fight passionately for that opinion. Reason does not care about exploring and defining; it wants to whirl up a broadsword and hack some enemy to pieces. The fact is plain to see in all controversy. It is particularly obvious in the battle that rages around "Scientific Method." Only the rare disputants have been curious to inquire what *science* is or to find out whether the word *method* has any meaning. If a man wanted to entertain a reader by discussing the method of

science, he should on no account begin with definitions; for a definition is a prosy thing. It takes all the fight out of an argument.

But if we care to see what the turmoil is all about, if we have any curiosity about this term "scientific method" with which we are bombed from on high every day of our intellectual life, we must examine the meanings of the words. To my mind the search for the definitions is more entertaining than cheering for one of the teams.

The word *science* commonly means whatever a disputant wants it to mean. Think of the statement that is so common in sermons: "Science claims that it can explain everything." Science, if it really made such a claim, would be a delusion; hence the statement is a big torpedo; it can be launched at any phase of science that is navigating the sea of opinion; if it is well aimed, it may sink a whole cargo of enemy psychology or genetics; a sympathetic congregation enjoys the explosion and is exhilarated by one more successful attack on science.

Watch the siege-gun that is discharged by Joseph Wood Krutch: "The eagerness which the scientist has shown to draw sociological and philosophical conclusions from his discoveries." Mr. Krutch argues that science "always promised us the great illumination," but that science has failed to guide us in our social and moral aims, and that therefore science has been a delusion. The esthetic readers of his essay watch the deadly shell explode in the fortification of science, and they rejoice at the destruction it does.

William James trained his artillery on "the sectarian scientist's attitude that the world of scientific laws and objects is all." The literary army has steadily maintained the bombardment ever since those words were printed. It assumes this definition of science: "a system of trying to prove that there is nothing in the uni-

verse except things and the mechanical laws of things." There is a literary factory in which duplicates of this definition are turned out with mechanical precision; these cartridges are sent up to the front line every day and fired at the entrenchments of science.

In each of these accusations there is an implied definition of science. If the definitions were correct, if science were a system of delusion or bragging or blindness, then it could not have a useful method. There is no conceivable way in which any one system of operations could be rational if it resulted in such a frantic variety of untruths. The social sciences are worse than deluded if they are putting any trust in such contradictory or non-existent ways of working.

I suppose the ordinary scientist is much puzzled by the definitions. He cannot see that they describe any procedure or any result which he ever heard of. Eddington and Jeans and Bridgman have told us with all the clarity they can command that their science does not explain anything whatever; they have no acquaintance with the definition that the ministers use. Conklin and Pearl may have drawn some sociological conclusions, and Parshley may have argued that science must teach the world what morals are; but their science of biology draws no such conclusion and gives no such teaching. If any reputable scientist, writing since 1900, has asserted that there is nothing in the universe but things and the laws of things, he is some man whom my diligence has failed to find. He belongs to a very small minority. I have never seen such an assertion as James imputes to science.

The definition of science which is commonly accepted, the only definition that scientists agree upon, is "organized knowledge"—in which *knowledge* is understood to mean verified observation or theory. If that is the only definition which is generally current, and if we accept

it until a better one is agreed upon, we can next proceed to hunt for a definition of *method.*

A flood of definitions is before us. So we cannot hope to know which is right, but only to find out what is probably the meaning that a majority of reasoners have in mind when they speak of that mystery, "the scientific method." Francis Bacon's idea of the fruitful way for science to work was that men should gather facts, and when they had a large collection should infer from them whatever law appeared by classifying them. This is the "inductive" method which was for three centuries supposed to be the clue to knowledge. Darwin said that he "worked on true Baconian principles." During my undergraduate days I understood that Bacon had illuminated the road of science for all time with the greatest and the only right method of going to work—and Croly seems to have had the same understanding thirty years later.

But nowadays every inquiring college student learns that Bacon's method was a mistake, that investigators of nature never, as a matter of fact, followed it, and that it would be barren if used alone. For it is pointed out that millions of data, if gathered without reference to any particular problem, are just a mass of dead facts, which will not yield any knowledge. Huxley thus describes the fallacy of mere data-gathering:

It is a favorite popular delusion that the scientific inquirer is under a sort of moral obligation to abstain from going beyond that generalization of observed facts which is absurdly called "Baconian" induction. But anyone who is practically acquainted with scientific work is aware that those who refuse to go beyond fact rarely get as far as fact; and anyone who has studied the history of science knows that almost every great step therein has been made by the "anticipation of Nature"—that is, by the invention of hypotheses, which often had very little

foundation to start with, and not unfrequently turned out to be wholly erroneous in the long run.

Huxley's account of the way scientists actually work seems to be generally accepted today. It appears that Darwin and Pasteur and Einstein and Chamberlin have been guided by some preliminary hypothesis that might solve a puzzle, and have then devoted their strenuous years to finding out whether the hypothesis could be so verified that all competent experimenters might repeat the demonstration in their own laboratories. I do not know of any objection that social scientists have made to this definition. They seem to agree that the usual procedure in science is like that of the man who investigated yellow fever: (1) He had before him a problem—what causes the transfer of the fever from one victim to another? (2) Out of his knowledge of contagious diseases and his study of the conditions of this particular disease arose a guess or "hunch" that it might be conveyed by some blood-sucking animal. (3) By prolonged and painstaking ingenuity he verified the supposition.

Probably Upton Sinclair, when he called himself scientific, believed that he was following a parallel method: (1) The problem was "Can the suffering caused by poverty be removed?" (2) Out of his long familiarity with poor people arose the supposition that poverty was caused by wrong property laws. (3) He tried to verify the theory by making it obvious to any open-minded student of social conditions. We see how different scientific method is in sociology from what it is in medicine. Sinclair's conclusion cannot be verified. A majority of students of law cannot verify his theory about the power of law; a majority of economists fail to verify his theory of industrial management; and a majority of people who own property find that their experience does not verify his theory of the motives of voters.

Probably Sinclair sees this lack of verification, still hopes for verification, and grants that if verification never comes, his theory is not scientific. Probably almost all reasoners about social affairs agree that they are not using the scientific method unless they can, in time, persuade all normal men. But it may be that they are still very hazy as to how science verifies a theory. Science does not put any reliance in logic. The Einsteins and Darwins appeal only to a check-up with those facts that appear alike to all competent observers. So long as the Sinclairs have to depend somewhat on logic for their demonstration, they cannot take the third and greatest step in the scientific method.

As for the first step, there is hardly any agreement even among the purely physical scientists. How does a man become conscious of a puzzle? Very few men raised a question about yellow fever before 1880. They assumed that the malady was conveyed by touch or through the air, or they supposed it was an act of God, or they supposed it came with the weather. The man who could recognize the problem had to be specially prepared by previous knowledge of microscopic organisms that cause disease; he had to have in his mind a picture of these as plants with a definite life history and definite modes of getting food. Only some specially equipped and inquisitive person could recognize a solvable puzzle in this annual plague.

Only some clever mind could have framed the question in a solvable form. If I had been inquiring into the cause of yellow fever in 1870, I should probably have asked myself, "Why does God make yellow fever?" A shrewder man might have asked, "What is the value of yellow fever?" For there is common belief in a moral universe where values are the greatest subject of discourse; hence the philosophical mind would have looked

in that direction with its question. A practical physician might have done better still; he might have inquired, "What miasma causes this ebullience in the blood?" Until a man has the right question, he cannot begin scientific work. The right question must be one that can be answered in a verifiable way.

Test Sinclair's guiding question by that standard. He asked himself, "Can the human race escape the suffering of poverty?" Sinclair knew that the race never had escaped. He was therefore asking about a future possibility of which there was no example in the past. He was asking about the power of the human race, which has never been defined or measured. He was asking in terms of such undefinable words as *escape* and *suffering* and *poverty,* which have only relative and movable meanings. His question presupposed that men had shown power in other ways to reason out what was wrong in society and to find a remedy by a logical method; yet many students of society have concluded that mankind seldom achieves such a rational feat—perhaps never has achieved it. For instance, J. T. Flynn has said in the *New Republic,* the journal which leads the world in hopefulness of reasoning out social salvation: "The concentration of capital is not my plan. It is not the plan of anybody. It is the result of *drift, as usual,* along the lines of least resistance, and in obedience to the necessities of the system under which we live. So many factors *are pushing us* in this direction." So a comparison of Sinclair's question with any preliminary query that ever led to success in science suggests very strongly that he had no conception of what the first step in scientific method is.

If the first step of method requires previous experience and a shrewd insight, the second step requires a wideness of knowledge and an ingenuity that are rarely combined in one brain. To ask the right kind of question

is hard; but to divine something like the right answer is so excessively difficult and is such a mysterious piece of good fortune that no analysis of the process has ever been made. All of us ordinary reasoners about scientific method have ordinary methodical minds; we can only think by routine; we can only imagine that the gifted discoverer in science works in our systematic way. Yet no description of scientific exploration tells us of method. Every account of a brilliant solution of a problem emphasizes luck, accident, hunch, wild trials, desperately wrong ventures, inspiration that came out of the void. Darwin used to speak of his "crazy experiments." He gave the lie to the methodizers when he recorded the arrival of the clue to the continuous variation of species: "I can remember the very spot in the road, whilst in my carriage, when the solution *occurred* to me." The same kind of testimony appears throughout de Kruif's *Microbe Hunters:* they exult in their prospecting and gambling, in not being methodical, in working with puzzles so baffling that any *method* of solution would be a caricature of their operations.

Of course there must be some method by which imagination works to construct the right hypothesis, some severely accurate process in the recesses of the brain. We know how mathematicians have gone to sleep, unable to solve a problem, and how in the morning their brains have presented the solution. We have all had the experience of finding that a difficult answer has been reached by the brain without our conscious effort to direct it. Herbert Spencer systematically relied on putting into his mind all the elements of a tangled case and then allowing the mind to work on them without conscious direction. The mind, when so engaged, must act by a method. But a psychologist can no more give an account of it than he can tell why Faraday and Maxwell adjusted their explor-

ing minds in a way for which Bridgman says there is no warrant.

> I find in myself [says Bridgman] a lack of sympathy, which I cannot justify by any of the considerations of this essay, with attempts like the recent one of Swann. . . . Doubtless there are many simple connections still to be discovered, and he who has a strong conviction of the existence of these connections is much more likely to find them. . . . It is largely a matter of psychology.

Who ever heard an apostle of "scientific method" talk like that?

Of course the pioneers in science, the men who earn fame for the brilliant theories that "occur" to them, are not typical scientists. The great majority of scientists do humdrum work, investigating methodically, and achieve no fame. But these are not the men that social scientists emulate. The Crolys and Lindemans and Sinclairs conceive themselves as playing the rôle of a Darwin, as breaking new paths, as being leaders to new horizons. They always compare themselves with those geniuses who pushed through uncharted wilderness to new lands of thought. Such geniuses did not work by method that has ever been explainable. Yet the imitators, sitting at desks and evolving systems of thought, suppose that they are following some "method."

Hence we see all about us in the realm of theory that reasoners are fitting out expeditions for discovery in social studies and education; they are equipped with "rigorous procedure" and provisioned with tons of method. They are, like Simmel, expecting to correct the erratic hit-or-miss ventures of mere scientific tramps. These methodizers are in command of an orderly cavalcade of well-drilled logic. Their purpose is all formulated; their route is thoroughly surveyed in advance.

Forth they go on the paved road of method. They advance with military precision, encamp for the night, proceed the allotted number of miles the next day. History does not record one discovery made by their method.

Since science is so large and diversified, we lose our way if we try to generalize about its processes. We can understand the nature of them better if we look at small models of scientific investigation. Huxley compared nature to a hidden chess-player who is master of an intricate game. Science is matched against this player and tries to fathom his moves. Now it is true that the first four moves which open a game of chess can be formulated, and a student of the game can learn the safe reply to any ordinary fifth or sixth move. But the skill of man has not extended a system to the thousandfold complications of the twentieth move. There is no method of playing chess. The man who tried to rely on a method would not be a player. If chess could be methodized, it would cease to be chess.

In the game of bridge there are many rules that usually apply; there is one underlying principle of establishing the long suit. But the player who relies on any method is not a player. He is only the kind of automaton who is blind to the particular problems of any given hand; he has the sort of mind that does not play bridge well and that could never reach new knowledge in science.

The American people elected Hoover to the presidency, assuming that the methodical mind of an engineer could solve the problems of administration. But the Hoover mind, confronted by the tricky and irrational greed of unsystematic politicians, was powerless to solve such social complications. There is no method of getting the right answer to a problem of politics.

Imagine a methodizer trying to make out the successive puzzles that appeared to the men who excavated the

ancient city of Ur. Only quick imagination, piecing together the broken hints of small and scattered fragments, can reconstruct a history. There must be ingenious surmises, ingenious discarding of wrong surmises. Propose your methodology of archeology to C. Leonard Woolley and notice how much use he has for it.

For thirty years the best-trained minds in all the medical laboratories have exercised themselves upon the problem of cancer. The only result thus far has been a little preliminary clearing away of wrong hopes. Do you hear of any methodizer who is helping to steer the researchers? The men upon whom we rely for success can only, as Dr. F. C. Wood expresses it, "renew the attack from every possible standpoint." They cannot hope for any method of learning the right standpoint. The method of cancer research will never be even faintly understood until after some worker has hit upon the solution by a process that just unsystematically "occurs" to him.

New knowledge in science is the result of a form of detective work—and no methodologist ever succeeded in ferreting out criminals, not even in story-books. The methodical policemen never can observe the right things to start with, never can ask the profitable first question, never are visited by the intuition that swims from nowhere into the ken of the clever detective. Arthur A. Carey has described his thirty-three years of work in hunting murderers. No method appears in his book. The master-detective can only tell us that his first duty is "to get a mental picture of the crime." No analytical mind will ever describe how a good detective knows that he must put into his picture the knob of a side-door and must not put into it the sensational divorce case.

The detectives—whether of crime or the secrets of nature—do not know what their method is. They can

give no analysis of their profession. And, for the same reason, the actual discoverers in science do not know what science is. The physicist says it is nothing but a system of measurements; the biologist says it is concerned with the immeasurable elements of life; the geologist says it is a system of inference from records. We hear a great deal about mathematics as a science; also we hear that mathematics is only a form of language, which cannot yield any information that was not first put into it. Yet this undefinable mathematics is a discoverer, and biology and physics go their own ways of successful exploration. The scientists have no notion of what their "method" is. They find themselves acting in successful ways, and they keep busy, without definitions or methods.

The successful scientist is animated by tireless curiosity about something. His puzzle is always different from any other puzzle that ever existed—else it could be solved mechanically. He can be somewhat guided by the ways in which other problems have been worked out, but only somewhat. If he should trust too much in any previous method, he would miss the idiosyncrasy of this particular situation. He must focus on what is unique, must guess and fancy, must contrive something different from what was ever done by any other man. If he is to succeed, he must on no account follow a method.

This fact, so patent in all the accounts that scientists have given of their work, will always be hidden from the systematizing mind. Witness the sorrow of a modern critic of science at Newton's artlessness:

> Would that in the pages of such a man we might find a clear statement of the method used by his powerful mind. But what a disappointment as we turn the pages of his work! Only a handful of general and often vague statements about his method. . . . One of the most curious

and exasperating features of this whole magnificent movement is that none of its great representatives appears to have known with satisfying clarity just what he was doing or how he was doing it. (E. A. Burtt, *Metaphysical Foundations of Physics.)*

The makers of method never have given science any help. Huxley says that the great investigators like Galileo and Harvey "would have done their work just as well if neither Bacon nor Descartes had ever propounded their views respecting the manner in which scientific investigation should be pursued."

The scientific detective works without any reference to the view of the methodizers. D'Abro indicates this truth in a pair of sentences about Einstein:

The genius of the individual scientist consists in singling out those particular facts which he *suspects* will yield the most interesting consequences. That Einstein should have picked out this identity of the two masses, whereas no one else had thought of it, is a tribute to the genius of Einstein; *and that is all that can be said.*

Authors who criticize science are prone to take wing into those rarefied altitudes where Einstein soars in his space-time continuum. I wish only to refer to that lofty region as one brief item of my explanation. My chief concern is down here on the level earth where educationists hope to apply a scientific method to the training of boys and girls. I want to inquire how much they know about the petty and patient ingenuity that is necessary for a scientist who has to make a merely mechanical test of a matter-of-fact theory.

T. Swann Harding analyzes foods for the United States Government. He described in *The Open Court* for May, 1930, the credulous way in which people will believe anything if it is placarded "Scientific." He tells

of a lecturer on spiritism who imagined a cause, from this cause imagined a whole philosophical system, and presented his method of reasoning as "scientific." Harding's comment on the lecture was:

As a matter of fact it was not even a caricature of scientific procedure, and yet it is increasingly evident to me that for some reason such procedures pass current among quite intelligent people today as thoroughly grounded in scientific method.

Harding illustrates scientific verification by telling of a theory which Sir Oliver Lodge advanced, that electricity favorably affects the growth of plants. One investigator repeated Lodge's experiment and got a similar result. But other investigators could not reach that result. So there was need of more careful verifying. A man in the Department of Agriculture went to work with corn plants in wooden boxes, and unexpectedly found a corroboration of Lodge's theory. But he was skeptical. He shuffled the boxes about and checked the amount of growth, not by the amount of electricity supplied, but by *the numbers on the boxes.* To his astonishment he found that the mere numbers—which could not conceivably have anything to do with growth of plants—were more significant than electricity! The rest of the story reveals what scientific verification is:

He then began to examine the boxes. It ultimately proved that, by pure chance, the boxes which bore low numbers differed from those that bore high numbers in capacity to retain moisture in the soil inside of them.

The mighty Sir Oliver, who is an oracle about spirits and immortality and ether, had been deceived about a mere fact of growth of plants—so much deceived that

he set the agricultural world agog with his false theory of how electricity would quicken growth.

Compare this mere mechanical difficulty in box-material with the infinitely complex and subtle material that teachers have to cultivate. If a real scientist like Lodge can be so unwary in the use of science for so simple an experiment, there is a possibility that sociologists and educationists, who are not in any sense scientists, may make very serious and far-reaching errors in the effort to use science for matters that cannot be weighed or measured.

The question of scientific method is now invading every dwelling where there is a taxpayer or a parent. In twenty years we shall know what the best minds are thinking about the pedagogy which results from scientific method.

CHAPTER XV

Psychology

The history of psychology is a record of the pride that reason takes in making a show of its powers. It is a record of the love that reason has for building towers of words and solemnly proclaiming that the towers are massive knowledge. It is a record of the reverence which intellectual men will always receive if they announce with pomp that they have some wisdom which is too mighty to be told in plain words. Such hunger for facts as drove Galileo and Michelson to experiment has usually been absent from the work of the psychologists. Their motive has more often been to display themselves as brilliant scholars and deep thinkers. They have thought with confidence, have not been curious to have their thoughts verified, and have slaughtered preceding theories as regularly as if they were philosophers.

Psychology was fathered by theology. The traits of the father appear in the priestly attitude that psychology has always taken: it has tried to guide education and the social sciences, not as a fellow worker amid puzzling facts, but as a superior adviser and seer. It was originally the study of the soul, and was important for its revelation of religious truth. For example, George Campbell complained in 1776 that "natural theology and psychology have been most unnaturally disjoined by philosophers." Campbell was both a theologian and a philosopher; he understood that psychology was a partner of theology.

The mother of psychology was philosophy. When Coleridge, a century ago, was analyzing Shakespeare's art, he distinguished the poetical method from the psy-

chological method. "We beg pardon," he added, "for the use of this insolens verbum, but it is one of which our language stands in great need. We have no single term to express The Philosophy of the Human Mind." So late as 1858 Sir William Hamilton's *Metaphysics* spoke of "Psychology, or the philosophy of the Human Mind." Wilhelm Max Wundt, the man who formulated modern psychology as a science, was a philosopher. His early work had been in physiology, and thus he was able to develop (in 1874) the "physiological psychology" which has been trying throughout my lifetime to become the queen of the sciences and to direct the destinies of the race. Wundt's real interest was in ethics. He thought of psychology as a method of teaching morals. He also conceived that the real value of psychology was its metaphysical part. He was a man of great vigor and enthusiasm, who inspired many able students in the Leipzig laboratory that he founded in 1879. During my youth he was sending them forth to the universities as teachers of the latest and greatest science.

It was the psychology of Wundt that William James absorbed and that he taught so brilliantly at Harvard in the 'eighties. Largely because of his work the *Century Dictionary* could say in 1889: "Psychology has recently taken the position of a universally acknowledged science." James's *Principles of Psychology* appeared in 1890 and was for twenty years an influential textbook. He trained a band of young scholars who propagated the new study in American universities. Undergraduates in the 'nineties took it for granted that psychology was the noblest mode of science and was going to reveal more wisdom than any other college subject. I can't recall that any suspicion of a weakness in psychology crossed my mind till I was more than forty years old. I assumed that psychology was really exploring the human mind and

that it would confer rich benefits by revealing the nature of the soul.

But E. L. Thorndike, who graduated from Harvard in 1896 and was then a disciple of James, soon began to suspect that James's system was founded on wrong principles. In 1899 he began to teach genetic psychology at Teachers College, was made professor of educational psychology in 1901, and in 1903 began to make a series of books which convinced the academic world that the basis of James's teaching was unstable. He experimented with hungry cats, observing how they learned to unlatch a door that admitted them to food. His conclusion was that the intelligence shown by animals is merely the result of many random movements, one of which happens to give a pleasurable result, is therefore impressed on the nervous system, and is therefore more likely to be repeated. All that had been called intelligence and learning Thorndike reduced to a series of chances. The movements that lead to pleasure are wholly automatic—"reflex actions." This theory of reflex action has permeated all psychology in America for the past twenty-five years and has made the name of Thorndike famous.

Thorndike had more of the scientist's caution than James had. But he entered confidently upon the application of psychology to education, and has been a leader ever since. A student of his told me admiringly in 1918, "Thorndike's torch has lighted the road we must take, lighted it farther than we can travel in fifty years." Great was the name of Thorndike.

That optimism is a fair sample of the continuous hope that modern psychology has inspired during the past half-century, and that has been constantly disappointed. Robert Mearns Yerkes, the most famous of the American investigators of animal psychology, who has for years experimented with chimpanzees and gorillas, has always

felt that Thorndike's conclusion was too simple. Professors Köhler and Spearman have challenged the conclusion as applied to man, and have made the foundation of Thorndike's educational psychology look unstable. In 1929 D. K. Adams published a monograph in which he affirmed that Thorndike's observations were inadequate and his interpretations false. In the same year the president of the American Psychological Association, K. S. Lashley, declared in his presidential address that the reflex-action theory must be rejected. Down goes the fame of Thorndike.

William McDougall rejoices in the downfall: "Thorndike's conclusions, which for a whole generation have been the main foundation of the *sarbon** theory, are thus finally exposed as fallacious. The theory that man is a machine is left without a single leg to stand upon; it remains floating upon a cloud of metaphysical prejudice."

McDougall is an Englishman, a writer on social psychology who was called to a professorship at Harvard in 1920. He made for himself so great a reputation that when Duke University was bidding renowned men to its staff at large salaries it invited him to lend his luster to the department of psychology. He has always been a determined exposer of the fallacies of psychology. "Wundt's physiology of the nervous system," he says, "was a tissue of unacceptable hypotheses." He knows what has been wrong with all previous psychology: "The search for what *is* has been inextricably confused with and hampered by the effort to show what *ought* to be. Similar vague assumptions may be found in almost every work on the social sciences." He recognized the peril of mere thinking about how the mind works: "The free play of the intellect is always a danger to society." He

* The "S-R bond"—i. e., the stimulus-response bond.

is resolved to be objective, unemotional, thoroughly scientific.

His notion of being scientific—of not trying to show how things *ought* to be—can be understood if we take note of what he thought was the duty of science in 1911. He then preached that the weakening of religious faith was a grave danger and that science *ought* to demonstrate the nature of the soul and its immortality. His mind is of the type that instinctively assumes such duties. It is not considered, even by so religious a man as L. P. Jacks, to be scientific. In 1925 Jacks described the futility of McDougall's reasoning about "a world science":

> The "world science" which would enable us even to state world problems does not exist. . . . We fear Dr. McDougall has only added one more to the 22,000 solutions. . . . M. Le Bon treats McDougall's principles with undisguised contempt.

In the same year R. G. Tugwell printed an even more unpleasant description of the mental workings of minds of the McDougall type:

> They have never done better than to sound plausible, have lacked insight, have merely made structures of logic that failed utterly to fit the facts, have bathed facts in a bath of mysticism.

Tugwell said that McDougall was "involved in the deeper confusion" and left him for dead upon the sands of the arena. But soon McDougall rose and struck a smashing blow at Thorndike's theory. Psychology is like that. Mortal wounds do not cause death. The leaders in this study are like the spirits of the warriors in Valhalla—killed during the daytime of joyous warfare, revived during the night, and fighting on the day following.

A clever debater could find in the history of science

a good many cases that might be described as similar to this slaughter among the psychologists. For instance, in biology there has been a series of exposures of mistaken investigators of the inheritance of acquired characters: Brown-Séquard, Tower, Kammerer. But Brown-Séquard's experiment seemed so well established that his error was not discovered till after his death; the biologists who failed to duplicate Tower's spots on potato-beetles were shocked by a scandal too disgusting to publish; and Kammerer, when it was discovered that his salamander spots were made with pigment, committed suicide. If a true scientist is detected in a fundamental error, he is crushed, déclassé. But in psychology the Thorndikes and McDougalls do not know they are injured. Their reputations do not suffer any more than if they were theologians or philosophers attacked by the mere logic and intuition of opponents. So it is not fun-making to compare them with the dwellers in Valhalla. It is a simile that really represents the fact.

Another way to see the nature of psychology is to spend an hour with the twenty-year-old *Britannica* article on the subject. It ran to the length of fifty-seven pages, most learned and awe-inspiring pages, which I used to assume were weighty with knowledge and grave reason. Today there is not five per cent. of it which a young psychologist would consider anything more than antiquated verbiage. The best that the profoundest scholars could achieve twenty years ago is now trash. For such a rapid putrefaction of the best materials there is no parallel in science. The shortcomings of previous science have been superficial; they have been the mistaken reaches of theory beyond where experiment could be completed. The great body of science has always been a verified foundation on which later workers could continue to build. Einstein, for example, did not find that Newton's work

was trash; he found that it was staunch and true as far as it went; he extended his relativity from it. Weismann did not overturn Darwinism, but, as he expressed it, "hoped only to add to the Darwinian edifice." The probability now seems strong that the future historian of twentieth-century science will not see any similarity between psychology and the physical sciences, but will draw the parallel between psychology and philosophy.

You may get an idea of the ghastly nature of the conflict among psychologists if you think of what John Broadus Watson did. For twelve years he was director of the psychological laboratory at Johns Hopkins; he has been president of the American Psychological Association; and he was proclaimed on the jacket of his *Behaviorism* "America's most distinguished scientist in the field of psychological research." In the first of the twelve lectures that were issued as pamphlets by the People's Institute and put into a box to make *Behaviorism* (1925) Watson described the struggles of the new science since 1912, and concluded:

Today the behaviorist can safely throw out a real challenge to the subjective psychologists—"Show us that you have a possible method—indeed that you have even a legitimate subject-matter. Prove to us that philosophy and the social sciences based upon your speculations have any right to further take up the time and thought of developing students."

He proposed to the army arrayed against him that he was going to throw all previous psychology completely into the discard. He jeeringly announced that most psychology is built out of "an odorless, formless, and colorless gas." He derided psychologists for trying to deal with consciousness, which he considered a gaseous assumption. His psychology, the worth-while psychology

of the future, was to concern itself with recording the facts of behavior, because these can be scientifically verified. All kinds of effort to deal with imaginary "consciousness" were not scientific. "The old psychology is dominated by a kind of subtle religious philosophy. . . . All that Wundt and his students really accomplished was to substitute for the word 'soul' the word 'consciousness.'" There is no evidence, he said in his declaration of war, that we have a mind which can reason: "What the psychologists have hitherto called thought is, in short, nothing but talking to ourselves. . . . The muscular habits learned in overt speech are responsible for internal speech (thought)."

Watson claimed for his Behaviorism the unspeakable power of changing personality: "Some day we shall have hospitals devoted to helping us change our personality, because we can change our personality as easily as we can change the shape of our nose. . . . Behaviorism ought to make men and women eager to rearrange their own lives. . . . I am trying to dangle a stimulus in front of you, a verbal stimulus which, if acted upon, will gradually change this universe. For the universe will change if you bring up your children in behavioristic freedom."

Watson was not content with changing the universe by defying all psychology. He defied the whole array of the biologists who study heredity. He told them that their notion of the inheritance of mental traits was an illusion. It is doubtful whether any challenge to a large group of scrupulous scientists was ever more bold. And to some extent his boldness was justified. For we commonly suppose that most of our conduct is shaped by inheritance of traits from our parents; whereas a very large part of it is learned long after birth and is not influenced in any way by heredity. Doubtless Watson's scorn of this fallacy has had a wholesome effect.

But the extreme to which he went in destroying a misconception surpasses in self-confidence any claim to power that I ever saw in print. He was not content to say that after long years of research mankind might learn to shape in children the characters that were desirable. That would have been a more reckless hope than any other psychologist ever voiced, but was far short of Watson's claim. He asserted—and he repeated the assertion in his revised *Behaviorism* of 1930—that he, now, has this power which is mightier than any medicine-man ever boasted.

> Give me a dozen healthy infants, well-formed, and my own specified world to bring them up in, and I'll guarantee to take any one at random and train him to become any type of specialist I might select—into a doctor, lawyer, artist, merchant-chief, and, yes, even into a beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of ancestors.

Thus, at one stroke, all the observation of teachers and parents and employers and geneticists is demolished. Watson says, "Give me my specified world, and I'll work the miracle." Since the dozen children never will be committed to him, since he never can have his specified world, the power that he claims will not be put to the test. He can shake his bright blade, scowl, and enjoy his triumph without exchanging a blow.

The critics surrendered to him, speaking thus in New York reviews: "Perhaps *Behaviorism* is the most important book ever written." "It marks an epoch in the intellectual history of man." A large portion of the realms of psychology accepted him as overlord and still acknowledges him. In 1930 McDougall described the wide sway of Watson—and it does not seem likely that he would wish to exaggerate the power of a rival:

His teaching has spread across the continent like a prairie-fire before which nothing can stand. . . . A Southern teacher recently complained to me that wherever he goes he finds Behaviorism rampant in the schools, and that, because he cannot accept it, he finds himself regarded by his colleagues as hopelessly out of date.

The domination that Behaviorism still exerts over intellectual people is extraordinary. Bertrand Russell, for example, who is not afraid to have a fling at the mightiest minds in philosophy and science, speaks softly when he states his guarded objections to Behaviorism. A more striking proof of the tyranny of Watson's method is the fear that it inspires in religious or esthetic minds: essayists and preachers cry out upon it as if it were a real social system like bolshevism or an accepted scientific theory like evolution. People exalt it by the importance they ascribe to it. I judge that four-fifths of the lamentation about the materialism of modern science is caused by the dread of Behaviorism.

Yet it has probably almost ceased to be a force. Enemies are now descending upon it from every side. Its chance of survival for five years is poor. It has, in the first place, set itself up against the most important conclusion that students of heredity have reached. They believe that mental traits are inherited, as can be seen in a few sentences from *Heredity and Human Affairs,* by Prof. E. M. East, the Harvard geneticist:

The mentality of man is due fundamentally to his hereditary endowment. The difference between Isaac Newton and the sons of other gentlemen farmers was due to the germ-cells of his father and mother. . . . Since the mechanism of heredity has been proved to be the same for the physical attributes of man as for the lower animals, it follows that his innate mental differences are distributed by the same means. . . . There is a genetic

basis for intelligence. . . . The character of mind built by the experience of the individual will be much alike under any set of conditions.

Prof. H. S. Jennings, the Johns Hopkins geneticist, has the same conception of heredity. In *The Biological Basis of Human Nature* he explains the kind of fallacy that Watson is guilty of when he denies that mental traits are inherited:

Biology must emphatically dissent from Watson's negative conclusion. . . . Just as it appears that biological science has succeeded in bringing to general recognition the importance of individuality. . . . Watson arrives with a super-biology to tell the world that this was all a mistake; and the world shows a tendency to swallow it! Nothing in Watson's positive observations requires such a negation. The whole appears to be a marked example of the fallacy of drawing negative conclusions from positive observations. . . . Diversity of genes can produce very great differences in mentality. . . . All the effects of gene diversity on mentality and behavior are solidly established. . . . It is positively known that gene diversities bring about great differences in mentality.

There is nowhere visible on the scientific horizon any indication that Professors East and Jennings are mistaken in their statements about the inheritance of mental traits. If they are correct, the principal boast of Behaviorism will prove to be a set of empty words—so untrue and so silly that Waldo Frank's description of Watson will have to be recognized as a sad fact; "an arrogant pseudo-scientific clown."

Even Calverton and Schmalhausen—those industrious book-makers who believe so thoroughly in Behaviorism—are scornful about Watson's idea of heredity: "Behaviorism is blind in its wilful assumption of a grand demo-

cratic native intellectual and artistic equality between younglings."

McDougall's condemnation of Watson is as strong as he knows how to make it in parliamentary language:

> Watson is by vocation an expert advertiser. In any other profession the man who made similar claims would be generally recognized as a charlatan. His book may mark an epoch in the intellectual history of America; but it is to be hoped that the epoch will be remembered as the low-water mark of critical judgment in America. To sweep aside all the immense mass of evidence of the instinctive basis of human nature . . . is a degree of childish presumption that could not flourish for a moment in any other country than America.

McDougall's hope about the low-water mark seems too optimistic. If we think of Mary Parker Follett's *Creative Experience,* we shall see why we may not yet be at the depth of intellectual ignominy. This book is "a plea for behavioristic sociology which goes a step further than Watson." It attempts to teach us: the solution of labor disputes by integrating the situation, the appliance of psychology to democracy, the dynamic psychology which tends to creative jurisprudence. Miss Follett was graduated from Radcliffe *summa cum laude,* and her reasoning was taken seriously by the reviewers. Their critical judgment seems to me considerably below the mark that was set by those who spoke well of *Behaviorism.*

What counts for more, among the psychologists, than attacks on Behaviorism is the new psychologies that spring up every little while to attract attention by their novelty and their splendid claims. Two years after Watson issued his epoch-marking lectures, Dr. Louis Berman published a little book, *The Religion Called Be-*

haviorism, which expounded the Gestalt Psychology. Berman dubbed Behaviorism "Watsonianity." He said that Behaviorism had "all the crudities and vacuities of the most hopeless as well as the most bigoted of all religions."

Berman imagines the case of a successful surgeon who became morose and confided to his wife that he wanted to commit suicide. She induced him to consult a specialist, who advised him "to forget it." Since this advice was not helpful, the surgeon went to a neurologist, who suspected that the trouble was *folie de doute* and sent him to a psychiatrist, who diagnosed the disease as a psychoneurosis. For a year the surgeon submitted to "much muck-raking of dreams" and at the end of the time was "just where he was at the beginning." Next he consulted a Behaviorist. But the Behaviorist could only advise that his patient should try to behave normally. "It seems to me," says Berman, "that all he could do would be to advise the surgeon to go ahead and try suicide." Then he explains his own way of solving the surgeon's case:

> The Gestalt theory provides an answer. . . . As larger and larger units are seen to take on more and more meaning in the light of Gestaltist formulations, the Universe itself, that largest unit and whole of all, must itself be considered the greatest Gestalt the mind of man can bear. The best advice the consulting Gestaltist could offer to my imagined patient might be: *To configurate with the universe.*

The italics are Dr. Berman's. He does not explain what the words mean, and I cannot guess. But Gestalt Psychology is becoming a new science that is doing its part to choke out Behaviorism.

Some of the sociologists in Germany have lost faith

in all the physiological psychologies and are constructing the kind they need in their work—the Geisteswissenschaftlich Psychology. Before 1935 there will probably be some other revolutionary psychology emerging from that fertile land of thought where every ten-year-old ism dies and becomes a fertilizer for a crop of new science.

"The new analytic psychology," used by Margaret Naumburg for her kindergarten method, may grow into a great creative force. There is no telling what virility a new psychology may develop in a short while. All the pedagogic experts would be lost without a psychology of some sort. "For some years I have been convinced," says Professor Snedden of Teachers College, "that psychology and sociology are the two basic sciences to education." John Dewey testifies that one of the few strong influences that came to him from books was from James's *Principles;* his first book was about psychology; and one of his deepest concerns has been education. He is impressed with the importance of psychology for education. But Watson tells us that Dewey's idea of developing the child from within is a doctrine of mystery, since "there is nothing within to develop." So it must be extremely difficult to know what psychology to choose as a basis in education. For instance, the three professors of the department of education at the University of Wisconsin who wrote *Introduction to Education* (1929) have to confess when they discuss vocational guidance:

> Some psychologists hold that success is largely due to the disposition or temperament of the individual. . . . Other psychologists maintain that some individuals are naturally much stronger in some one line than in other lines. . . . Still other psychologists believe that vocational aptitude is a result of environment.

How can these contradictory beliefs be basic in a depart-

ment of education? The question becomes all the more perplexing when Prof. Ross L. Finney of the University of Minnesota, in *A Sociological Philosophy of Education,* speaks out:

In the strictest sense of the word *science,* psychology and sociology are not sciences at all, nor ever can be. Indeed it is conceivable that the cult of science may become an actual obstacle to knowledge here.

It really looks as if an education based on any psychology would be like a religion directed by a debating society.

On April 5, 1928, the New York *Times* had an editorial on "the successive new psychologies." This was significant, since the *Times* is more respectful to scholarship of every sort than any other periodical that I read. Its reviews of even the most absurd books by obscure psychologists are uniformly polite. But even the *Times* was moved to mirthful protest on the day after it printed an interview with the French savant, Jules-Bois, of the Sorbonne, who had come in state on the *Ile de France,* under the auspices of the Alliance Française, to lecture on what the most advanced French psychologists had learned of the "superconscious mind."

The superconscious mind is the exact opposite of Freud's subconscious mind. It has the quality which makes man really man, and not just a super-animal. It has long been recognized philosophically, being in reality the over-soul spoken of by Emerson, but it has only recently been recognized scientifically. The new psychological quality has been investigated in the laboratories of the Sorbonne. French psychologists have cured an habitual drunkard by arousing his sense of moral values through the awakening of his superconscious mind.

Jules-Bois was so distinguished a scientist that the

Times featured an article by him in its Sunday Magazine for July first. He celebrated America and the Superconscious in phrases like these:

Freud and his followers floundered in the pedantic labyrinth of the Œdipus complex and the subconscious wish. . . . The country that in modern times the Superconscious has established and blessed is undoubtedly America. . . . The sailing of the *Mayflower* was a sort of Superconscious baptism of America, although she was but in gestation. . . . The potent dollar has not come forth out of avarice; it is the by-product of a will to regeneration. . . . Emerson is a magic jewel on the knotty finger of Uncle Sam, and he has deeply aroused those who hope to regenerate the old world.

Such expressions suggest mysticism or an uplift philosophy, but we must keep in mind that Jules-Bois came as a scientist. His mission, he said, was "to help hitch this star of the Superconscious to the wagon of scientific progress"; and he spoke as one who had already attained his purpose:

To have succeeded in this is one of the most notable achievements of the Paris Société de Psychologie. With physicists, chemists, and, above all, psychiatrists, the writer of this article had to measure swords. Still, after long and sometimes stormy sessions, the honorable institution unanimously adopted the Superconscious and conferred upon the writer the Chair, as well as the rather difficult mission to spread it abroad.

You see how naturally any kind of psychologist turns to a warlike metaphor to describe his scholarly life: M. Jules-Bois had to wield his sword against the psychiatrists. It seems to be true in a general way that the psychiatrists consider themselves in a different class from psychologists; they are students of abnormal minds; they

diagnose mental ailments; they practice one branch of medical art. One of them has told me how unreliable psychologists are: "I estimate that ninety-nine per cent. of the psychological reports that I read every year are worthless because they deal with material that the experimenter does not understand." Presumably the practice of psychiatry is different from the arts of psychotherapy and psychagogy. Yet the subjects overlap so much, and are even so intertwined, that no account of psychology ought to omit a reference to psychiatry.

A psychiatric work which the public hears much about, and which promises to reach far in its effect upon society, is the method of dealing with criminals. The plea of the psychiatrists (respectfully listened to by progressive and dynamic improvers of society) is that their science should be put in control of penal institutions, that they should be empowered to make a scientific analysis of prisoners and to prescribe the treatment which will rescue convicts instead of debasing them. Psychiatrists are often called as expert alienists to give testimony in court as to the mental state of a man accused of crime.

Even the practitioners of this sober and highly-respected science conduct their affairs with the same sword-play among themselves that is in vogue with their psychological colleagues. An illustration is the testimony that Dr. E. E. Hicks gave before the Crime Commission of New York:

Never let a psychiatrist tell you what to do with a delinquent or a criminal. Yes, I'm a psychiatrist myself, but you should never let us tell you what to do with these people. We are too theoretical. Judges are better qualified to say what should be done. When an alienist says that a man can be sane continuously before committing a deed, then be insane while he commits it, and afterward become perfectly sane again—well, Mr. Commissioners, I

think that you should appoint a board to examine the alienists. . . . That stuff about "psychopathic personality" is just simply bunk. . . . If juries listened to such trash as the alienists' testimony at the Peacox trial, no one would ever be convicted. The testimony was an absolute disgrace.

Dr. Hicks made a suggestion that I have never seen paralleled in my excursions into the fields of study of the psyche: "Psychiatrists should jointly examine an accused person. All alienists should *agree* on their findings, or be able to give the court a mighty good reason for disagreeing." Suppose that the Behaviorists and the Introspectionists were obliged to examine their data in joint sessions and were not allowed to publish any of their findings except such as they agreed upon. Suppose that the Gestaltists and the Superconsciousnessists were obliged by law to verify theories among themselves before publication. Then the world would not have to be agitated so often by the noise of unverified opinions shouted as war-cries; we should not have to be horrified by the sight of psychologists beheading one another on the public thoroughfare of literature. Such a law would seem fair to all of us laymen who feel that the human intellect is degraded by the perpetual bloodthirsty clamor of the schools of psychology. All the physical sciences submit to verification. The psychologists do not offer any reason—if they wish to be classed with scientists—why they should not verify their results as all the real sciences do.

But perhaps no legal restrictions could prevent the psychologists from publishing every fresh theory as fast as any professor invented a new way to reputation. They have such a strong herd instinct that they could usually agree on any theory long enough to get it printed. Take the case of Granville Stanley Hall, president of Clark

University. Twenty years ago he was so renowned a psychologist that all other scholars in America bowed to him and would have been able to agree pretty closely that his books on adolescence and youth should be published as accredited science. Yet when he died, seven years ago, his work was appraised, even in the sympathetic obituary notices, as merely clever and unfounded theorizings. His fate will not start one tear down the cheeks of young psychologists today—any more than the fate of Paracelsus's science makes them weep. But if a researcher, now working with zest on the latest ology or ity, could have lived through those decades when Hall was thrice as mighty a man as any Watson or Thorndike, and if he, after all the years of reverence, saw the great man's glory shrivel to a handful of dry hay, then he would go abroad from his laboratory for an hour into some secluded nook and brood upon the annihilation that has overtaken every laborer in the realm of psychology. If you have lived through this glory and this eclipse of a fame, you can realize the ghastly death that awaits every system of psychism which now flourishes in the universities.

You can feel how likely it is that Bernard De Voto's estimate of psychology is the one that will soon be generally held by educated people:

> It seems to me that no other subject is today so dominated by uncontrolled enthusiasm, fanaticism, ignorant and absurd pretension, and downright charlatanism. . . . Psychology is the contemporary phase of the medieval mind.

If you think a mere literary man's judgment in such a matter is not significant, couple it with the verdict of one of the world's most famous and most careful physiologists, J. S. Haldane:

Psychology as a branch of science is still on about the same level as chemistry was in the days of the alchemists.

The story goes that Emerson inquired, when some friends laughed at him for eating pie at breakfast, "But, gentlemen, what is pie for?" So there is no need of laughing at the psychologists or pitying them. What is the intellect for? It has been evident throughout history that the intellect is for reasoning proudly, just as psychologists do, without curiosity to be verified, in such a way as will strike awe into common people. This is thobbery, the natural function of the human mind. The only reason why scientists submit to verification is that their material confines them to the invariable laws of matter and energy. If they stray beyond the bounds of those laws, if they try to impose upon their colleagues any mere reasoning, they make themselves ridiculous. Only the fear of being ridiculous restrains their intellects from folly. But a psychologist works where few laws are known; his material is the inscrutable operations of the undefinable "mind" upon some undefinable "matter." He is trying to work with "knowledge," which the philosophers have never been able to agree about; with "experience," whose nature has never been analyzed. Hence there can be no check-up. Hence there is wild license of theory-building. The psychologists are not mentally inferior. They are simply unfortunate in not having to verify their ideas.

It was Hall who brought Freud to lecture in America. For twenty years Freud has been the greatest potentate that ever ruled the kingdom of the psyche. So vast has been the importance of his psychoanalysis that a bibliography of articles published through 1926 contained 4,739 titles. Educators have taken psychoanalysis as basic knowledge; sociologists have gained esteem by citing the

lore of the subconscious mind; progressive reasoners of all sorts have started from psychoanalysis as from an axiom; religious minds have been so terrified by psychoanalysis that they have wailed and shouted against it. This is the normal behavior of our intellect; it is just in accord with the parable of Chapter II—about reason fearing its own pictures. When Freud drew a picture of our subconscious self as the abode of naughty sex-repressions, we naturally accepted it. There it was, vivid, drawn by a scientist. Who would think of inquiring about it? No—we saw it as distinctly as a Pueblo Indian sees the picture of a Thunder Bird that his elders draw for him, and we believed it just as unquestioningly. Only a few years ago it was impossibly bad form in intellectual circles not to do homage to Freud's picture of Sexual Complexes. Psychoanalysis has been a necessary part of the equipment of every progressive thinker.

The violent hatred of psychoanalysis by all conservative people has been more laughable than the reverence of the progressives. Preachers and humanists have fought Freud's theory as if it were a flesh-and-blood dragon that all eyes could see. A rational being might have questioned the reality of this monster, might have suspended judgment until it could be vouched for by all scientists alike. But the simians of Christendom accepted Freud's picture as a live serpent; they armed themselves, beat their logical tom-toms, and rushed to battle. This religious host was opposed by the army of scientific psychology and dynamic forward-lookers. A ten-year war has raged around psychoanalysis. And now it is becoming evident that the dreadful dragon is non-existent. The soul of man is what it is. No theory can ever degrade it; no exalted reasoning can make it into something higher.

We are by nature so full of fight, so incurious, so unable to see facts, that we cannot realize what the war of

psychoanalysis means. It indicates that we—you and I now, here, in the United States—are still unable to tell the difference between a mental picture and a verified fact. A pile of words about an imaginary subconscious psyche is just as terrifying to us as ever a shaman's description of a brutish deity was to a savage. A gorgeous theory that emanates from a laboratory is now just as impressive as a doctrine of sun-worship used to be in Persia. An Œdipus complex, manufactured by Freud, seems as actual to us as a sulphurous hell did to our grandfathers. We are as gullible and superstitious today as we have been throughout the thousands of years of philosophy and theology and magic. And our gullibility is less excusable; for we live in an age when we might learn what verification is.

Of course there is still a possibility that psychoanalysis will become a part of the body of undisputed knowledge. This chapter is not presuming to say whether psychoanalysis is a possible science or not. We are concerned only with a mental attitude. If Freud has hit upon an explanation of the soul which is going to be verified by all competent observers, then his theory will become truth for all sensible minds. It will not raise or lower the soul one inch. The soul is what it is. A true theory will be useful because it will help us to understand ourselves a little better.

The probability is strong that psychoanalysis is only an aberration in the brain of a few unreliable men like Jung and Adler and Brill. Freud's accounts of cases do not prove anything; his inferences from his cases seem to me artless. I have never, in any serious books, been so impressed with a feeling of the childish incompetence of an author to realize what reasoning is and what evidence is. Freud's way of interpreting dreams shows no trace of understanding what data are in science, and his as-

sumption about the sexual meanings of the shapes of objects seems like the unrestrained fancy of an erotic little girl—not because it is erotic, but because it is without evidence. Compared with Freud, a Watson or a McDougall appears shrewd and cogent. Freud's books do not rouse any antagonism in me: I am prepared to expect that any true theory of the soul will be disagreeable, and disagreeableness is no reason for disbelief. I do not see any reason, in the nature of things, why Freud's theory might not prove true. There is no doubt that Freud developed a successful mode of treating many neurotic patients, no doubt that sex-desires are deeper and more pervasive and more distressing than patients are conscious of. What is more, we may learn to live more pleasantly if we follow Freud's advice to draw away the veil from sex-impulse and bring it out into the open and live frankly with this element of us that is biologically so important and so natural. There is no reason to fear psychoanalysis. But there are the strongest reasons for suspecting that psychoanalysis is just an ill-drawn diagram which represents no fact that science will ever become acquainted with.

Eight years ago Wohlgemuth said in his *Critical Examination of Psychoanalysis:* "The objection to Freud's theory comes essentially from the psychologists. . . . In competent scientific circles psychoanalysis has fallen absolutely flat. . . . Nowhere in the whole of Freud's writing is there a shred of proof. Almost complete ignorance is manifested everywhere of the literature and the results of modern psychology, of experimental method, and of logic." This is the judgment of a critic who vouches that he approached Freud's theory sympathetically and at first was favorably impressed by it.

Six years ago Watson classed psychoanalysis with voodooism. He predicted that in twenty years "an

analyst using Freudian concepts will be placed upon the same plane as a phrenologist."

Two years ago Dr. R. J. Berry, Dean of the Faculty of Medicine in the University of Melbourne, gave his estimate of psychoanalysis in *Current History:*

On the very insecure foundation of a half-truth Freud has built a veritable Woolworth Tower of untruth. . . . Freudianism is but another example of the many devastating doctrines of mind. These have their brief and fleeting moment in the limelight, and die a speedy death.

In 1930 Joseph Jastrow hinted to the readers of the *Saturday Review of Literature* what he thinks about psychoanalysis. He is a cautious psychologist who has been consistently generous in reviewing books on his subject; so, instead of stating outright that psychoanalysis is an empty fraud, he says it seems to be and asks questions:

When we read that smoking derives from a fixation on the nipple . . . that interests in painting, sculpture, and cooking are traceable to coprophilic pleasure . . . we seem to be justified in consigning the entire system that sponsors such conclusions to the nearest wastebasket. . . . Will the verdict of science declare psychoanalysis all ingenious futility and error?

Mr. Jastrow offers no hope of a more favorable verdict.

In 1930 J. S. Haldane described what he considers the verdict of science already is:

The sort of organism which Freud imagines is thus a mere product of his imagination. . . . The whole structure of any such psychology rests on bad physics and bad physiology, besides being hopelessly inadequate from the special standpoint of psychology. It misrepresents our actions, because it misrepresents both our perceptions

and our passions. . . . If I speak strongly on this subject, I mean every word of what I say; and perhaps these words, coming as they do from a physiologist, may be more heeded than if they came from a philosophical teacher by profession, or from one tied by the creed of a Church.

The most complete refutation of psychoanalysis has been made by Dr. Abraham Myerson, who says that in the early years of his neurological practice he "sought diligently to become a Freudian." He grants the usefulness of Freudianism in compelling us "to dispense with shams, to dig more critically, to explore more candidly." But he has only contempt for psychoanalysis as a reasoned or scientific system.

Freud is an artist, selecting whatever is in accord with his own wishes, so that his theories are erected into a gorgeous and fantastic wish-fulfilment. . . . His attitude toward opponents is not at all that of a man of science, but distinctly that of the leader of a cult. . . . You can get any complex you are after just as well by ten words selected at random from a time-table as by the episodes of the dream itself. . . . A partial account of the phenomena is declared to be a full account, and a sweeping generalization is announced which explains only a fragment of the facts.

A bookful of evidence that every branch of psychology has been futile might not prove absolutely that the universities ought to eradicate the subject from their curriculums. For another sizable book could be filled with evidence that some psychological studies of behavior have resulted in useful information. When psychologists investigate the causes of laughter among children, or the inability of blindfolded students to recognize their favorite kind of cigarette, or the curve of fatigue in mental work, or the nature of eye-movements in reading, they

may derive useful results. Also we must admit that psychology may in future fulfil the hopes that have not yet been realized. A strong defense of psychology could be written.

But we are not interested in either defense or accusation. We are seeing an example of how the intellect remains as credulous as it was a century ago and twenty centuries ago. The person who can realize that fact is forever protected against the shams of pseudo-science, against the wiles of philosophical reasoning, against the misleading parables of theology, against pretentious unverified thinking of every sort. We shall never find a recipe for knowing truth from falsehood, but we can learn that nothing is true until thoroughly verified. We can learn to examine any new theory with curiosity, and not to spurn it because it is unpleasant, not to accept it till its probability is universally admitted. The pride of our reason drives us to be in the van of new thought, to display ourselves as clever fellows who can appraise novel systems of reasoning. Such pride infallibly leads to humiliation. The only way of safety is to realize that every new palace of thought is probably a stucco affair that will topple within ten years. The history of psychology is so recent, its arrogant hopes have been so compelling, that it will show any wary man how pride of reason is more disastrous than any other kind of self-confidence.

A history of psychology, *Mind in America,* is being written by Dr. Grace Adams. If we may judge by some samples that she has shown in the *Mercury,* she is going to illuminate a dreadful chamber of the horrors of the intellect. Here is her description of the present status of psychology:

Thus stood psychological opinion in the early nineteen-

twenties. From the welter of claims and accusations and denials and even bitterness only one thing seemed permanent; there were three distinct and incompatible schools of psychology: the conscious, the unconscious, and the anti-conscious. The pronouncements of one group must remain forever unintelligible to the other two. There was apparently no hope of compromise. Yet the miracle has come to pass. There are today in American universities professors who . . . can skip nimbly from one set of conceptions to the other.

In 1929 Frederic Charles Bartlett was president of the Psychological Section of the British Association for the Advancement of Science. In his presidential address he warned his confréres of the surpassing difficulties of the experimental method in their subject—the personal equation of the experimenter, the artificial conditions of all experiments, the unreconcilable variations in results. These sources of error, he argued, made it statistically impossible to draw any reliable inferences. "The psychologist is concerned with the attitude of the whole individual, and the attempt to isolate a particular response to a particular stimulus and express it in mathematical form is merely fantastic."

There is reason to fear that nine-tenths of all the "rigorous procedure" of psychology is shining fantasy. Hence any man who puts faith in psychology is using his mind the way a man does who invests his earnings in lottery tickets: he may win, but he is not sensible. Think, as an illustration, of the case of Rufus M. Jones, a Haverford professor of philosophy who in 1922 made a book called *Spiritual Energies in Daily Life*. He risked his soul's fortune on psychology: "It is now pretty generally recognized that the deepest issues of faith are to be settled in this field." It happens that only a couple of miles away from Haverford, at Bryn Mawr, lived Pro-

fessor Leuba, a psychologist, whose statistics published six years previously had shown that psychologists have less religious faith than any other group of academic minds. Yet Professor Jones was willing to leave the deepest issues of faith to them. Truly there is no limit to the fascination of the glittering lure of psychology.

From this loftiest range of interest you may descend to the lowest level of commercialism and find the same reverence for psychology. Three years ago the newspapers told us of a convention of doll-manufacturers who paid a woman psychologist to inspire them with an address that ran thus:

What must our country do to avert race-suicide? Modern civilization, with its luxury and ease, brings about a dulling of the maternal instinct. Many solutions are being offered to the problem, but there is only one way out. That is to strengthen the maternal instinct by some aggressive, constructive program. Right instincts of maternity must be fostered in our female children. In them must be created a love for home and babies. What shall be the means to this end? Dolls can be made to play an important part in strengthening the maternal instinct of America's future mothers. Play with dolls fosters the love of children. It makes motherhood the goal of ambition. Properly directed play can reshape the nation.

Readers who are not familiar with the splendid projects of psychology may suppose that this woman was an extremist; but her analysis of the failure of the maternal instinct and her creative plan for reviving it are in the normal tradition of psychology. Psychology has always stood ready to tell what is wrong with society and to supply a remedy derived by severe methodological principles. Such enterprises as creating motherhood and reshaping a nation are all in the day's work for psychology.

Psychology can turn its hand to any art and reveal those secrets of success for which gifted amateurs might struggle in vain. The art of writing is a good example. H. A. Overstreet, one of the most successful of the psychologists who apply their science to practical ends, has a chapter on "The psychology of Writing." If you catch the inspiration in the following passage about "The psychology of Words," you will see how science guides to delicacy in style:

In the fifth place, we must be sensitive to the way words fit together. In the next to the last paragraph we first wrote the sentence thus: "The sensitive writer will note a connotative suggestiveness." On reading the paragraph over, the incompatible tone quality of the two words "note" and "connotative" was at once apparent. What is it that makes some words fit and some words fight? . . . There are no rules; chiefly, perhaps, because the matter has never been thoroughly investigated from a psychological point of view.

Volume 12 of Harvard Studies in Education is *An Approach to Composition through Psychology,* by Phyllis Robbins, Ed.M. Quoting from any such book is dangerous, because injustice may be done to the spirit of the whole by detaching a few fragments and setting them up in alien surroundings. But I have tried to select four short passages which fairly represent the sort of guidance that the Harvard Study offers to teachers of English Composition. The numbers in parentheses refer to pages.

(15) The pupil who is familiar with the workings of observation, imagination, and reflection, and who has some idea of the various emotions, will naturally look about for means to set these processes functioning in his readers. And he will find many linguistic resources to draw upon.

(163) The other day each of you drew a chart of some

emotion, and tabulated such comments as physiology and psychology might make. With this chart as a background, do your best to describe that emotion in the most effective way. You cannot tell which method is the best, unless you try them all—but very briefly.

(165) The *Principle of Truth* deals (though not exclusively, of course) with the preparatory stage, with observing and gathering material; the *Principles of Probability* and *Utility* deal with the second stage, the arranging and thinking stage; the *Principle of Interest* with the third stage, with style and words. Story-telling is evidently the very opportunity to add imagination and reflection to observation.

(220) Psychology is involved in all this; and psychology comes frankly to the surface when we find in an author's style evidence of his general make-up, "what he starts with and what he has lived through"—his personality.

For fear that brief extracts may seem unfair, I devote page 285 to a reproduction of page 135 of the Harvard Study, which is less technical and forbidding than page 136. This chart represents the way in which a pupil is taught to analyze fifteen phrases from four of the poems of Robert Frost. The work is designed to show how pupils may learn to find "The Author Disclosed in His Writings." Would that some poet would report to us how he feels about psychology in the teaching of children to understand him and his art.

When I imagine Miss Robbins's method at work in an actual classroom, my mind goes creepy; my feelings run hot and cold as if a pedagogic malaria had invaded me. I say an *actual* classroom, meaning some specific one in my home town, where a weary and underpaid Miss Logan struggles against heart-breaking odds to convey even the rudiments of composition to a hundred and ninety-four tenth-year pupils who are ill-prepared, who have small

interest in good form, who do not naturally "set processes functioning," and who lack those "linguistic resources" that are discussed in the graduate seminars of the Harvard School of Education. I try to imagine Miss Logan charting an emotion and tabulating the comments that psychology makes in room 39. Since Miss Logan is powerless to do any such thing, and since psychology does not make anything whatever in room 39, I try to fancy what a professional story-writer would feel about the Three Principles. It is so profane that I must not report it. My mind reels as I think of Archibald Snyder—and he is the brightest boy in the class—manufacturing a story by adding reflection to observation. Psychology comes so frankly to the surface when I see "E^2 wet artlessness" that I can only clench my fists and groan. Harvard Study 12 cannot be imagined as operant in any ordinary classroom except by a brain that lives amidst golden visions of pedagogy. The Study has no reference to any factual Bill and Clarissa who don't know much. It is a Book of Revelation conceived on some psychic Patmos and reporting a New Jerusalem which Bill and Miss Logan cannot enter till they have been borne thither in a chariot of fire. The historian of education who tries to comment on such a book fifty years hence will find his faculties shriveling before such a radiant apocalypse. He will not be able to conceive how the minds of 1930 could behold such heavenly pupils and divine teachers washed in the blood of Procedure and robed in dazzling Technique and strumming their golden harps of Psychological Enterprise.

Our intellect has always preferred a revelation to a fact. It has never cared about a real Bill Timkins who cannot possibly chart an emotion. It is ravished by some bright Platonic idolon of Bill who dotes on emotional schematizings.

3. Preliminary Work

E = Environment — O = Observation
T = Temperament — I = Imagination
D = Disposition — turn of mind — interests — R = Reflection
F = Feelings and sentiments — S = Style

Now Close the Windows ..... E^2 Cozy guest of indoors in winter

To the Thawing Wind ..... E^2 The wet restlessness of spring

The Black Cottage, lines 48-50 { O^1 Details show loneliness of deserted houses

The Death of the Hired Man, lines 118-120 { F^1 Humorous but genuine feeling for home / S^1 Sentimental. T Everyday speech. S^2 Sparing of words.

Home Burial, line 9 { $F^2 O^2$ Suggests inner motive by noting outer change of expression. Character-drawing. R^1

A Hundred Collars, opening lines { O^3 Surgical summing up of an man. Character-drawing. $F^3 D^2 R^2$

Mending Wall { $D^2 F^4$ Kindly, amused insight into country characters. R^3 Philosophizes about neighbors. S^3 Quaint, unhackneyed style

The Wood-Pile, lines 5-6; 26 --- O^4 1st step in observation (rare with Frost)

The Bonfire, lines 81-84 { O^5 Another 1st step / S^4 In spite of leisurely manner, he always reaches his point & just in time to fill the lines

A Patch of Old Snow { I^1 Metaphor. Probably philosophizing) again in his easy-going way on the transitory importance of daily events. $R^4 D^3$

Gathering Leaves (analyzed already) New England thrift R^5.

Looking for a Sunset Bird in Winter, line 17 .... Metaphor I^2

Our Singing Strength, opening stanza ... Full of metaphor I^3.

The Runaway .... Love and knowledge of animals $F^5 D^4$

Wild Grapes Full of the feel of the country $D^5 O^6$ / Rambling, colloquial lines S^5 / Sums up at the end. *hold on with the heart* $F^6 R^6$

The full glare of that truth is appalling. We had best turn to a humorous phase of it.

Ernest Boyd once used a page of a magazine for exhibiting the method of Dr. H. K. Nixon in *Psychology for the Writer*. The following claim seemed significant to Boyd:

> There is need for a systematic treatment of modern psychology as applied to literary creation and appreciation. Writers ought to know as much as possible about human nature. In the main that knowledge can be acquired only by rubbing shoulders with life. The mental equipment thus acquired is likely to be biased and narrow. It is also unorganized. . . . It is the work of the professional psychologist to supply this organized approach to human nature.

Boyd said that as he read Dr. Nixon's words he realized the ghastly predicament of Shelley, Voltaire, and Goethe, who had to write without any organized approach to human nature. He plunged eagerly into the pages to learn about "a scientific study of human behavior in relation to writing." He found that Dr. Nixon had a boundless contempt for any kind of unscientific conception of the poetic impulse. He found the scientific advice that poets should "practice making artistically effective associations"; he found many pages of diagrams and graphs which showed scientifically that a striking title is striking. He found a great deal of psychology. But it seemed childish, and the book as a whole roused in him no higher emotion than was conveyed by a line from the *Mikado:* "A source of innocent merriment."

The critics feel a more poisonous merriment when they read biography that is the fruit of the science of psychology. "A study of Napoleon by a professional psychologist is a crying need," says Albert Guérard; "and we

turned to *Napoleon Self-Destroyed* with the keenest expectations. Alas, alas! Dr. Pierce Clark may be a noted psychologist, but he is no historian. . . . His total unfamiliarity with the field comes out practically on every page. . . . His psychological contribution consists mainly in discovering that Napoleon was an egotist: it had been suspected before. But egotism is rebaptized *narcism.* With that magic word you can perform wonders."

Royal Davis says that Raymond Holden, the psychoanalytic biographer of Lincoln, must have known things by a magical process, and that he had caused a grotesque Lincoln to wabble through the pages. Allen Tate, in estimating the life of Lincoln by the famous Emil Ludwig, could find no words of sober criticism that would convey the quality of this Gestaltic labor; so he expressed his judgment of Ludwig's method in the language of a cook-book:

> Add together three pieces of invention, two pieces of misunderstood evidence, sixteen purple metaphors (mixed), and a great historical figure, and you get exactly nothing.

Psychology, which is only a source of innocent merriment among literary people, must be a serious business to many thousands of young men and women who are looking for a job. They are taught that psychology can show them what occupation they ought to follow. Professors of psychology offer Vocational Guidance to all high-school and college students. The method by which psychology operates is to have the candidate answer a list of questions, a Human Analysis Test, many examples of which were given by Arturo F. Ratti in the *Mercury* for October, 1928.

Dr. Douglas Fryer (professor of psychology at New York University), his wife, and Dr. H. D. Kitson (professor at Columbia), assisted by twenty-one leading busi-

ness specialists, have issued *Vocational Self-Guidance System.* Some of the questions which students must ask themselves are as follows:

Have I a gracefulness suiting my physique?
Has my bearing a dignity suiting my build?
Do I systematize my life by scientific methods?
Is my life planned so that I feel I am controlling my destiny?

A professor in the Graduate School of Education at Harvard (John M. Brewer) offers topics for research work to be done by graduate students of Vocational Guidance:

Can destiny be changed?
How can the blind alley be opened?
Outline plans which you intend to try to carry out as your contribution to the cause of industrial betterment.

When you think of what employers are in real life, what college students are, what jobs are, do you feel able to make a guess as to the mental status of the psychologically-minded professors who give Vocational Guidance? Suppose that one of them went to Lloyd's agency to take out a ten-thousand-dollar policy insuring that his method would sound sensible and useful to the scientists of 1950. I wonder what the rate on the policy would be. It seems safe to say that Lloyd's would consider the risk ultra-hazardous.

I think so because of the way scientists nowadays regard psychology. They smile at it. If I were a psychologist and if people disregarded me or maligned me, I should not lose heart. But if I once caught sight of that peculiar smile which is on a biologist's face when he

is asked about psychology, I should feel queasy. It is the sort of smile that he gives when you ask him about Kant's Moral Imperative or Upton Sinclair's plan for committing our government to the workers. It is the smile that Ernest Boyd gave when he read about the scientific basis of poesy. It is a smile that would make me want to leave psychology and find a place for honest manual labor.

There is no chance that the psychologists will abandon their profession. The probability is that they will do what religion seems to be doing—get rid of supernaturalism. It seems likely that quackery and effrontery cannot flourish indefinitely under the name of psychology. Gardner Murphy probably forecast the truth in his *Historical Introduction to Modern Psychology* (1929):

> The subject-matter of psychology and the subject-matter of physiology are already merging, and seem likely before long to become simply one subject-matter—the quantitive laws of the organism.
>
> When psychology limits itself to something quantitative, when it studies merely physiology—when, in short it ceases to be psychology—it will become respectable.

CHAPTER XVI

Education

"Properly directed play with dolls can reshape the nation." If you think there is no truth in that psychologist's statement which was quoted in the previous chapter, you are not prepared to understand the vast system of thobbery that is known as Education—with a capital *E*. There is truth in the statement about dolls. It is a truth that can be expressed with two *ifs: If* the directors of the doll campaign were skilful enough, and *if* the girls were of the sort that the psychologist had in mind, then the nation could be reshaped according to the prediction. Probably there are some mothers so clever, who have daughters so amenable, that they could stimulate the maternal instinct and cause the birth of babies who would not have been born without that stimulus. *If* the proportion of such mothers and daughters to all the mothers and daughters in the country is high enough, the project of the psychologist is logical and can succeed. The project cannot be proved absurd unless we can show that it assumes too high a proportion of the kind of females that the psychologist has in mind.

Miss Phyllis Robbins has a seven-page section on "How to Rouse Feelings and Influence Opinions" by applying the psychological analysis of words as stimuli. I may not have faith in this kind of teaching because I lack her skill, and so may be inclined to argue that most teachers are like me and that the psychological approach to composition is wrong tactics. All depends on whether most teachers and pupils are the sort of persons who can profit by the Robbins method. If they are of that sort, the method will succeed.

John Dewey has drawn a picture of what the school should do with pupils. It is in *School and Society,* written in 1900, revised in 1915, reprinted ten times, and still widely quoted with esteem:

> When the school saturates each child with the spirit of service, providing him with the instruments of self-direction, we shall have the deepest and best guaranty of a larger society which is worthy, lovely, and harmonious.

The mental picture has been convincing to tens of thousands of educators, because it is drawn by a powerful thinker whose reputation for understanding society is revered in all teachers' colleges. In the picture we see a personification of a great power, THE SCHOOL; we see it performing an act upon a child, SATURATION; we vividly see in action THE SPIRIT OF SERVICE; we look upon a lifelike character that is produced by this activity, A SELF-DIRECTED CHILD. The personified SCHOOL is so pleasing and so flattering, so convincingly painted by an adored philosopher, that educational leaders cannot think of querying whether it represents a reality.

And to some extent it does tell the truth. If a Dewey presided over a schoolful of children who were saturable with the spirit of service, he could produce a social group that would be lovely. He never did produce that kind of group. No teacher who drew inspiration from his ideal ever has materialized a guaranty of a lovely society. We therefore have a right to ask: "Is Dewey's drawing a work of imagination that does not represent what any actual body of teachers in any actual system can do with the pupils that are actually in the classrooms?"

Such a question about so mighty an intellect could not be taken seriously by some readers if they had not seen in preceding chapters how the finest human minds

have often been most thoroughly victimized by mental pictures. And I suspect that, even after all the preparation in those chapters, some readers will lack the imagination to conceive that the human race is still as prone to this kind of delusion as ever it was. Consider the probability.

Only seventy years ago most professors in American colleges believed in a material hell; that belief is now seen by almost all professors to have been a mere mental picture.

Forty years ago there was hardly a professor of philosophy in the United States who did not believe in a concrete personal God who answered prayers; now the large majority see that the God worshiped by them in their youth was only a symbol.

George Herbert Palmer has described the nature of philosophy as it was generally understood thirty years ago: "In religion all philosophy culminates, or rather from it all philosophy flows." That then appeared to most philosophers to be the solid and stable truth. Now it appears to most philosophers as only a cloudy misconception.

Twenty years ago nearly all psychologists saw their subject as a compendium of Feeling and Cognition and Instinct and Ideation that were to be explored by philosophical introspection. Today that whole structure is regarded by almost all psychologists as a draggled delusion that was never substantial.

When we scan the record of delusions, so recent, so undisputed by some of the very men who helped to create the delusions, our minds feel an icy chill of suspicion. We have to fear that all the young instructors now in schools of education, if they live till 1960, will perceive that the Deweys of our day are not concerned with actual teachers and pupils, but are sketching the bright images of an

utterly unreal SCHOOL which exists only in their Platonic brains.

The first piece of evidence that I offer to justify such a fear is C. C. Little's *The Awakening College,* 1930. Mr. Little has been president of the universities of Maine and Michigan; he has been a researcher in genetics and cancer, a teacher of pathology in the Harvard Medical School; he has shown skill as an executive in university affairs. Hence his reasoning about education is a fairer example of how scientific brains work nowadays than it would be if he were an emotional philosopher. Throughout his book he gives many descriptions of the sort of creature that a university professor actually is (the numbers refer to pages):

30. The vast majority of faculties of our colleges are in what to them is the happiest of all earthly states—namely, an enormous amount of diffuse and futile discussion.

50. Here, and at every level of university problems, one meets the chief opposition to new ideas from a narrow and selfish faculty group.

54. The sterile, unimaginative atmosphere of a college faculty.

64. The violent and childish opposition by the faculty. . . . The narrowness, smallness, and human inadequacy.

97. Faculty dictates are frequently enforced with just as much asperity and lack of balance as the orthodox zealot ever displayed in roasting a witch.

149. To erase the faculty and university senate meetings would prevent those learned bodies from leaving to posterity their minutes as conclusive evidence of their complete sterility.

There is the pitiless display of what university facul-

ties are—as seen by Mr. Little's piercing eyes. The faculties—as he perceives them—prevent him from putting into operation his charming and sensible and dynamic reforms of education. One of the alterations that he thinks necessary is to divide the curriculum into two parts; the first two years, called a University College, should "deal with efforts to arouse intellectual curiosity." This University College, Mr. Little tells us, "should be manned by a faculty primarily interested in students, whose sympathies must be young and ready. Teachers and teaching should be emphasized. Imagination, originality, enthusiasm, fire—things that arouse interest, that 'lead out' youth—should be sought rather than a long bibliography of textbooks." And where are these teachers to be found? Mr. Little does not say. He just draws a picture of the utterly glorious professors who appear when his curriculum is ready for operation. He puts these divine instructors into his sketch by the mere statement that "The establishment of a two-year course at a University College *would take* the minds of the faculty off self-advancement and would give them a broader vision." To take the minds of his childish and sterile faculty off their self-advancement would be a profound reformation; to confer upon his unimaginative and narrow professors a broader vision would be the work of magic; to create the professors that he visions would be a miracle. The miracle is wrought by a change in the curriculum. Not a particle of experience is offered to show that the reformation is probable, nor even a bit of logic to show that the hope is plausible. The miracle is simply asserted. We are asked to look upon a picture of the host of angelic professors flying toward a University College, and to believe that the picture represents reality.

The only account of actual operations to secure the

new type of faculty is a paragraph on page 149, which begins with a description of the type of faculty that now exists:

> The almost unbelievable autocracy and narrowness of the professional scholar is recognized as the greatest obstacle to increased humanity and progress in education by practically all college presidents whose faculties are large. It would seem that the operation for their removal was almost certain to be performed in the not distant future. It appears to be doubtful as to what, if any, anesthetic can be used, inasmuch as the patient has little if any "heart." Regardless of how it is accomplished, however, it is certain that, once the operation is complete and the professional scholar is removed from contact with youth which he neither understands nor loves, the recovery of the college *will be* rapid and complete. *There will come* to its faculties men and women who love to teach . . . reproducing the zeal for scholarship in the minds and hearts of their students.

This picture of securing zeal for scholarship by banishing the scholars is a pretty paradox. The operation of removing the cancer of scholarship seems to Mr. Little a difficulty, but he does not even mention the possibility of a difficulty in creating a new faculty of such zeal and skill. This new faculty does not have to be created. It does not even have to be summoned by waving a wand. "It is certain that it will come."

If Mr. Little's picture-making were at all exceptional, if he were a philosopher, or if critics of his book regarded it as unsuitable to a practical age, then I should have no right to exhibit it as a sample of modern reasoning about education. But it is not exceptional; it shows more realism and more grasp of harsh facts than the average of the essays by men who want to reform curriculums. Mr. Little is not a philosophical idealist or romancer, but a

scientist trained in the rigor of the laboratory; he is a college executive of wide experience. And the reviewers of his book did not call attention to the fact that he produces, out of his imagination, a miraculous faculty such as all the aspirations of Occidental civilization have never approximated. He drew a picture of a supernal faculty; he said, "It will come." And his readers accepted the miracle as easily as if they had been a Galilean multitude looking at the many mansions in a house not made with hands.

The most uncanny part of Mr. Little's artistry is his emphasis on the "curiosity" that is to be stimulated in his College by his heavenly corps of instructors. He regards curiosity as the motive that must animate all true intellectual work. How much curiosity would he himself have for examining his own reasoning and seeing to what extent it is mere painting with the brush of fancy and the pigments of self-conceit?

It is wisdom for him to argue and not to be curious. For he lives in a world where people delight in pictures and will pay no attention to the mere facts that most college students are not curious, that inspiring professors are very rare, and that progressive university presidents are usually irrational and bigoted. If a man wants to improve education, he will make no headway by dilating on these mere facts. He can gain a hearing only by exhibiting bright hopes of what his brain creates.

The most common of these hopes of improving education is that pupils can be taught to think straight. Of course the obvious fact about the keenest thinkers of every generation is that they are seen by the next generation to have thought with abominable crookedness. Many gifted thinkers—for example, Mr. Little—can see, even in their own generation, that a large part of the intellectuals who surround them are unable to think

straight. Prof. William H. Kilpatrick, of Teachers College, is an illustration. He has compiled a *Source Book in the Philosophy of Education* and has written *Education for a Changing Civilization.* His ideal, not for college students simply, but for pupils in the grades, is that we "should encourage in the growing child such an appropriate study of the changing world as would help him to grow in the power and disposition to think *independently of tradition or prejudice* about matters of social and public interest." Now, Professor Kilpatrick lives in the world's most powerful institution for developing the science of education, and yet he has to make the following confession about the weak thinking of some of his colleagues: "In such ways may conservatism and even reaction masquerade under the guise of 'progress,' and, sad to say, in this unworthy program a professional 'science' of education may lend its unholy sanction." If the very scientists of education are thinking with such blind and unholy prejudice, whence are to come the teachers who shall not only be able to think clearly themselves, but shall have the ineffable skill to cause the little ones to think independently of tradition or prejudice? The question is unbearable when we face its full meaning. Most philosophers confess that no philosopher ever was able to think independently of tradition. It is the most progressive and holy of the philosophers of education, John Dewey, who has made the most scathing indictment of the inability of philosophers to escape from their traditional prejudices; he says that they have all based their systems on prejudice. Yet Kilpatrick paints us a picture in which we vividly see:

1. Teachers who have this unexampled ability to be independent of prejudice.
2. Teachers who can impart this ability.

3. Pupils who can learn to think better than all the philosophers.

I cannot see why Kilpatrick is not a more extravagant artist than any medieval theologian who drew accurate pictures of the slopes of Purgatory. I should suppose that by 1960 he would be considered a far more superstitious man than any scholastic.

The assumption that a large proportion of teachers can train a large proportion of students to think clearly or independently or creatively is, for most writers on education, an axiomatic commonplace. Any speaker at an alumni banquet of any school or university will be regarded as uttering platitude if he talks thus: "The aim of education should be to develop constructive thinking." But to me that seems an aim which would be too high for an archangel. I have never seen any teacher who could think constructively; I cannot even find out what "constructive thinking" is. Much less have I seen a teacher—I mean an actual teacher in the flesh, one with two eyes and a nose—who could impart this extremely rare power of thinking. Presumably the proportion of students who could receive the power is smaller than the proportion of teachers who could impart it. So, when I see a mental picture, drawn by an educational orator, of a teacher developing constructive thought, I cannot recognize any similarity to real life. I seem to be looking at a vision which is somewhat more imaginary than that of the leader of the ethereal army, from whose eyes came flame and out of whose mouth went a sword.

If any reader supposes that I make such a comparison for rhetorical effect, he loses the whole point of this book. I mean literally, without exaggeration or satire, that a person who offers me a picture of the teaching of constructive thought seems to be deluded by some dream.

He is inviting us to gamble on his dream at odds of a thousand to one. For every true vision there are a thousand false ones. To experiment with one wrong vision is costly, and to experiment with a hundred is ruinous. We are obliged, however much we respect faith and imagination, to go slowly, to be skeptical, to demand preliminary tests, to distrust every self-confident preacher of some method of translating our children from ignorance to knowledge by any scheme of reforming a curriculum or producing inspired teachers by methodology. Our money and our children are at stake. We are compelled by every consideration of prudence to be suspicious of the mental pictures that are conjured up with easy fertility. All experience proves that most of them are visionary.

Look at a few examples, common ones, of the imaginings that intellectual people have of the functions of a school system. Read the numbered items slowly; consider in each case the power that is assumed in teachers, the divine susceptibility that is assumed in pupils.

1. The schools should be so organized that they would prevent young men like Leopold and Loeb and Dreitzer from committing murder.—Dr. Jacob Katz, chaplain of Sing Sing; also many hundreds of editors and ministers.

2. Our methods should be based on the need to give children *an imperious desire* to express themselves in language. When the urge to write is provided, the pursuit of knowledge will be adventurous and ardent.—Henry Suzzallo, President of the Carnegie Foundation for the Advancement of Teaching.

3. The mechanic and psychic sciences are unable to supply our youth with guidance. The Impromptu Method gives the outburst of spontaneity a new significance. The human being must turn to spontaneous expression if he wants to break down the inhibitions caused by accepted

methods of education.—Dr. J. L. Moreno of Vienna, whose method is being tried in Viennese schools.

4. "The Activity School" is based on a new philosophy of education. Since every child's life recapitulates the development of the race, the education of each child should follow the phases of the development of the race. —Prof. Adolph Ferrière of Geneva.

5. Personality can be made strong and good through the teaching of ideals in the schools. Through conversation and the presentation of information it is possible to develop in the students a strong desire for the possession of an ideal.—W. W. Charters, Director of Educational Research at the Ohio State University.

6. Knowledge is growing and changing so rapidly that any information learned in college is likely to be out of date by the time a man gets out into the world. There are today a thousand ways of learning information that are more efficient than going to college.—Glenn Frank, President of the University of Wisconsin.

7. What education has to impart is an intimate sense for the power of ideas, for the beauty of ideas, and for the structure of ideas.—Prof. A. N. Whitehead, in *The Aims of Education.*

8. High-school students in some of these Modern Schools do more competent and independent research in such subjects as science, history, and literature than college sophomores could possibly sustain.—Margaret Naumburg, founder of the Walden School.

9. The curriculum must be controlled not so much by what information and skills the child is to learn in school as it is by how he feels about what he learns.—P. W. L. Cox, Professor of Education in New York University.

It is well to interrupt the list of ideals for a few minutes and to walk about the room or take a cup of coffee. These extraordinary revelations benumb the mind if taken rapidly in concentrated form. Close the book for

a time; come back to your normal habit of regarding school work.

Now, as you resume the list, make yourself dwell on each proposal, in order to get the fulness of its claim. Alongside each proposal put your knowledge of actual boys and girls who are in school, of actual teachers who have to moil in school, of the lowly results that ninety per cent. of all teaching produces in ninety-eight per cent. of all pupils.

10. The current educational theory has gone wrong at almost every important fork of the road, and especially with respect to pedagogical methods. . . . It is the business of teachers to run not merely the school, but the world; and the world will never be truly civilized until they assume that responsibility. . . . We should organize our curricula with the definite objective of formulating the beliefs of our young people in all the aspects of their lives: cosmic and social origins, biological first principles, anthropological differences, political institutions, moral criteria, ultimate valuations, and what not.—Ross L. Finney, professor of Educational Sociology in the University of Minnesota.

11. The strain of large classes; the nervous apprehension concerning marks, examinations, promotions; the friction between nagging teacher and rebellious pupils; the preoccupation with the mental and intellectual at the expense of other phases of child development—these are all ruthlessly banished. Instead, the new school sets up an environment in which children can be happy and free, in which they may work and play with enthusiasm, in which the prevailing feeling-tone is one of harmony and sympathy.—Harold Rugg and Ann Shumaker, of the Lincoln School of Teachers College.

12. Out of her own rich culture, her broad association, her greater maturity, a teacher can make most subjects glow with interest and vitality,—A. Laura McGregor, of the Bureau of Records and Research, Rochester.

13. To prepare children for the unexpected means to train them in method. They will have to find their own facts and make their own rules, and if schools can't give them that power, then schools no longer educate for the modern world.—Walter Lippmann.

When Lippmann wrote the dictum about method and power, his historical sense was alert and he was logical; he was explaining the idea that, whereas in the previous generation educators knew what life was to be for pupils, the educators of today, in the midst of such wide and violent alterations, do not know what the life of pupils is to be like when they are adults. So he inferred, reasonably enough, that the task of schools now must be different from the task of schools in 1890. When his mind was confronted with a picture of THE SCHOOL and a picture of THE DUTY that teachers have, he drew a conclusion that no logician can dispute. No rational being wants to dispute with Walter Lippmann on any score, for he is a man who sees many issues clearly and expounds them wisely. But we have to query his idea about education. Can he name three high-school teachers who are competent to train pupils in a *method* of meeting the unexpected? For my part, I have never heard of any method for meeting emergencies of even the pettiest sort. I have never known that any teacher—whether of psychology or football—ever was able to give students *a power* to find facts and make rules. And, granted that there are some such teachers and pupils, that fact is not what Lippmann is talking about. He is discussing the everyday work of all average teachers with all average pupils in all schools—else his remark would have no meaning. The teachers to whom I refer his recipe throw up their hands and are speechless: they know nothing about any possibility of teaching such an abstraction as A METHOD. No doubt the mental picture of A SCHOOL

can give to the mental picture of ALL CHILDREN the superhuman POWER of meeting THE UNEXPECTED. But I do not know where to look for any specific Miss Raymond who can give to a specific Michael Troostwyk the specific skill of finding the unforeseeable facts of social change and of inferring from them right rules of conduct. The greatest economists and moralists have been unequal to such a feat. If there is a method by which all teachers can give to all pupils the power to perform the feat, and if Lippmann can point the way to it, he will accomplish more for mankind than John Quincy Adams could have accomplished if God had given him the conceptive power.

Lippmann is editor of the New York *World,* familiar with the ways in which men misconceive human institutions. In his books he has exposed our common illusions about politics in a democracy. He has shown us that THE PUBLIC is a phantom, that we trust it because we spell it with capital letters and think of it as some wise force which judges shrewdly at elections. He has disclosed to us the actual voters who have to cast ballots without knowledge of the candidates or the issues. Elections are carried by ignorant and confused individuals who have scarcely any shrewdness to judge why they cast one ballot rather than another. Lippmann has benefited his country by disclosing the muddled *persons* who vote; he has shown that THE PUBLIC is just a row of nine capital letters which refer to emptiness.

Lippmann was once invited by the English teachers of New York City to state what he considered their foremost duty. He responded with an admirable letter in which he urged them to teach the deceptiveness of words. He explained how words like "liberal" or "bolshevist" are banners of emotion and conceal facts from us and confound our efforts to think straight. He must know

that every philosopher has been detected by other philosophers in some falsity of reasoning that was due to the deceptiveness of words. If all philosophers have been tricked by undefined terms, could Mr. Lippmann concede the possibility that he has himself been misguided by the meaning of nine capital letters which he forgot to define? If the gravest publicists have been led into mythology by the capitals of THE PUBLIC, it is conceivable that an eminent editor has gone astray because he failed to notice that THE SCHOOL is only another of what he so well calls "stereotypes." Just as the public is a swarm of ignorant individuals, so the school is a swarm of ignorant individuals, mostly young women, who do not have any conception of training in method, of making rules of life, or of giving to children a power that has never been possessed by the wisest newspaper editors. THE SCHOOL may be as much of a phantom as THE PUBLIC that Lippmann anatomized.

If dazzling phantoms of pedagogy are believed in because of the faith in capital letters, all the mystery of this form of spiritualism is explained. For thirty years I have marveled at the educational spirits, which have seemed so bodily to the serious mediums who evoked them, but have been non-existent to me. I have been mystified by the fact that practical men in all walks of life continually materialize a wraith called "the school" and solemnly command it to confer upon children such mental riches as never have been hoped for by flesh-and-blood teachers. There seems to be only one explanation that is not insulting to human intelligence—that is, the power of capital letters to turn thinking awry. All good reasoners have testified to that power. The most skilful logicians and metaphysicians have agreed that the human mind has always been, and is now, deluded by words (like *public* or *spirit* or *justice*) which are assumed to

have a meaning that deserves capital letters, but which, when defined, are seen not to have any meaning. Since this is a universal weakness of the intellect, we may suspect that our reasoning about pedagogy is infected with it. If we explain Mr. Lippmann's impossible hope in this way, we include him among the best reasoners of all the ages and can continue to respect him. Any other explanation would result in classing Mr. Lippmann among the heedless mystics. So it seems proper to adopt this hypothesis until a more plausible one is offered.

I am only too well aware how fanciful the explanation sounds. But before you dismiss it, read the description of actual teachers given by the dean of the State Teachers College of Colorado, E. A. Cross. He is as cheerful and sensible a man as you could hope to meet if you toured schools of education for a year; his description was given for the purpose of helping along the improvement that he believes is coming in American education.

Men and women are anxious to be assured that the schools are teaching clear thinking, common honesty, love of country—all the principles and qualities which they believe are American. . . . The schools in which they place their hope and trust *are just the school-teachers.* And who are the teachers? . . . An exceedingly large number of these hoped-for saviors of the nation are between the ages of eighteen and twenty-one. . . . As to preparation for their calling, the average elementary teacher has had only four years of schooling beyond the elementary grades. . . . Nearly one third of them are teaching school this year for the first time; and next year another third will be new. . . . If the schools are to save the country teachers must be able to see things as they are in daylight, and not through a blue haze of idealism which scorns foundations and backgrounds. . . . When the country appeals to the schools to teach children obedience to law and respect for ideals, it needs to recall that half

the teachers themselves have no adequate conception of what the nation stands for, nor what justice and balanced civic judgment imply.

Prof. Manley H. Harper, Dean Walter H. Galloway, and the editor of the *Nation* have been compelled to agree in the following verdict about elementary teachers:

They are in the main inconsistent, muddle-headed, willing to ignore facts, ignorant of the progress of history and science. . . . We intrust the making of better citizens out of our children to young girls, many of whom are economically, socially, and intellectually inferior to the children they are teaching.

Alexander Meiklejohn was formerly the president of Amherst and has been chairman of the new Experimental College at the University of Wisconsin. All liberal journals speak of him with utmost respect and good wishes. He has this to say about the hopeless plight of the actual teachers now in American schools:

The truth is that our teaching is so caught up, so tossed about by the vast and heaving currents of material prosperity which beat upon it, that any genuine leadership in education is practically impossible. . . . Our communities are hostile to learning in its proper forms. The teachers in our schools and colleges are in effect servants, subject to direction by others for whose judgment on educational matters they can have little respect. . . . Why are students so unresponsive to the appeal for learning? As to the fact, I call to witness the discouragement and despair of teachers of liberal learning from one end of the country to the other.

I suppose that no American university lays claim to a faculty of higher grade than Harvard's. The class-day orator at the Harvard commencement of 1930 dared to

say that his college was "lamentably lacking in teachers."

In the face of evidence like this, ranging from a foremost university to the great body of elementary teachers, how is it possible for Miss McGregor and Mr. Lippmann to assume with such theological blandness that teachers can make subjects glow with vitality and can impart a method of adjusting to the unforeseeable? To say that they are hypnotized by a capital-letter idol has an uncanny sound. I hope some other solution is true. But, after all my seeking, I can find no other.

Professor Whitehead tells us that the business of the teacher is to impart an intimate sense for the power, beauty, and structure of ideas. That business can be carried on by a philosophical angel clad in ten capital letters, THE TEACHER. But the persons—the Browns and O'Tooles and Niemanns who work on the platforms of schoolrooms—have no such angelic skill. The very rare person who had it would be engaged by Harvard to fill Professor Whitehead's place when he retires.

"Personality can be made strong and good through the teaching of ideals in the schools," says one of the best-known educational experts in the country, Prof. W. W. Charters. Thousands of school superintendents and principals naturally take the statement literally. They are now at work all over the land conferring with teachers, who appoint committees, which draw up lists of twenty traits that are desirable to cultivate. The campaign is mapped: each trait is to have special emphasis for one week throughout the entire city system of schools; lists of seven situations in which each trait can be exercised are compiled; the plan of procedure is carefully and earnestly explained in many meetings of teachers; pep-rallies are held to advertise the project to pupils; the crusade of Personality Education is on.

Are you acquainted with any sensible teacher who is

such an average human being that she knows the difference between evangelism and honest-to-goodness motives of conduct, whose very soul creeps within her at the thought of taking part in this kind of morality fanfare? Do you know some boy—an ordinary, human boy, fairly conscientious and of average ability—who has the feeling of a boy about machine-made morality? Then imagine this teacher keeping a straight face while she asks this boy to recite on the cultivation of trait 5 as illustrated by situation 2.

We know that there are teachers who could keep a straight face and boys who could trustfully feel that their characters were receiving showers of blessing. But we know that those teachers are so unpopular as not to have influence with pupils; and we know that those boys are not the sort that girls admire. We fear—we are obliged by all our knowledge of actual boys and girls to fear—that such a campaign for developing character may be the most pernicious undertaking in which a school could engage. If I had a son in a high school that was carrying out the Charters program, I should want to withdraw him, for I should expect him to become nauseated at the very names of character and moral conduct and duty. There is no estimating the amount of moral destruction that might be caused in a school by the Charters plan—especially if the principal were a man whose character was not respected by the pupils. Such principals do exist.

I feel thus, and you feel thus, and all our friends feel the same. How is it possible that thousands of school administrators should be swept away from their moorings of common sense by a wind of doctrine that W. W. Charters blows? He is the man who helped to direct a huge teacher-training study based on a list of 236,655 activities of teachers; from this list 1010 activities were selected to be evaluated, first as to their usefulness, second

as to their difficulty. In his summary of the Study he uses the word *objective* fifty times on four consecutive pages. His style is like this:

Educational objectives dominate the elementary and high-school curriculum and are expressed in terms of the type of citizen which the public school undertakes to develop. That is to say, one of the teachers' major objectives is to attain the objectives of the program of studies.

How such verbiage is supposed to convey the ineffable art of "developing a type of citizen" or of "developing personality in pupils" is entirely beyond my apprehension. I suspect that even Mr. Lippmann could not put his trust in it. Possibly he would agree that the superintendents and principals would not trust it unless they were under the spell of the big letters that name an abstraction—EDUCATION. Prof. Stewart G. Cole names precisely that spell as the explanation of the workings of the Charters mind when it deals with any given trait of character: "The abstract principle, *honesty,* takes on finality for him in the classroom." There are strong reasons for thinking—though a reader may gasp with incredulity when he first encounters the idea—that most of the professional theorizers about education are as much in bondage to sheer abstractions as ever the medieval scholastics were when they supposed that their mental pictures represented bodily substance.

Think of the following abstraction—a complete new high school imagined by Prof. Goodwin Watson of Teachers College:

The conventional high-school curriculum is largely waste matter. We should abolish English, mathematics, history, science, etc., and substitute for them six depart-

ments which would be main trunk-lines of adolescent experience. There will be courses in athletics, producing plays, making mechanical models, reading literature, playing music, dancing, telling stories, and in creating with rhythm, color, and form in every sort of medium. Travel will receive special emphasis. . . . *In all faith* I invite the progressive educators of 1930 to the creation of a high school educationally as well as architecturally modern.

If you are unfamiliar with pedagogical literature, you may suspect that I have chosen the plan of an extremist, or even a lunatic. But Teachers College does not appoint lunatics to its faculty. No institution of learning in the country has shown more shrewdness in selecting a corps of able men who can write progressive books and be commanding figures on platforms when they address conventions of teachers. Dr. Goodwin Watson is a worthy member of that faculty. In teachers' colleges not a year passes without the promulgation of some impressive plan for "completely recasting" all existing types of education and creating a new type that is in accord with expert reasoning.

"In all faith," says Dr. Watson, "I invite progressive educators to the creation of a high school." In Teachers College every member of the staff is competent to create, in his brain, a whole new high-school system suitable for five million pupils. When in human history were ideologists ever more confident that their proud reason could triumph over matter? In Teachers College the reasoners put their faith, not in corporeal teachers, but in ideological schematizations that are produced by sheer thinking. "Under the present conditions of inadequately trained teachers," says Prof. Harold Rugg of Teachers College, "my allegiance is to the curriculum rather than to the teacher." So he throws to the winds all that has been wisdom about education throughout all experience and

substitutes therefor the "creation" of Experts in Pedagogy. On November 16, 1930, the newspapers informed us that Prof. David Snedden, of Teachers College, addressing the High School Teachers' Association of New York City, "hurled most of the contemporary educational standards to the scrap-heap and raised, in their stead, a system of functional values."

If you care to understand the nature of the minds that are now creating the plans of those schemes which are to supplant teachers, you cannot do better than to read *How to Make a Curriculum,* by Franklin Bobbitt, professor of school administration in the University of Chicago; for he is admittedly the leader in the best modern thought of this department of pedagogy; he is a mighty man. A careful assay of these three consecutive sentences will show the power of his progressive and dynamic and creative reason:

The three major language matters needed in the community life are vocabulary, sentence-sense, and power to *think* in a clear orderly way in the innumerable fields of man's *thought.* If the third of these is adequately taken care of, it will require vital experiences sufficient to care for the other two. The major problem of training in language becomes then the problem of training in power to *think* concerning the various matters of which man should *think;* in which process the language is used as the indispensable instrument of adequate *thought.*

But professors of education know that for the time being some reliance must still be put in the teacher; so they help the poor creature out with as much wisdom as she can assimilate. A fair sample of their assistance can be seen in a few sentences from *How to Teach,* by Strayer and Norsworthy, Chapter VI, "The Teacher's Use of the Imagination."

Three points of dispute in connection with image types are worth while noting. First, the question is raised by some psychologists as to whether kinæsthetic or motor images really exist.

No more need be said here of the reproductive image, as it is synonymous with the memory image.

The importance of productive imagery cannot be over-emphasized. This power to create the new out of the old is one of the greatest possessions of mankind.

It is concerning these supposed advantages of the object image that there has been most dispute.

The second type of confusion, between reproductive and productive memory, is even more common.

In the entire chapter I cannot find any sentences that seem more intelligible or useful than these.

William J. Cooper, United States Commissioner of Education, seems not to worry about the petty details of securing enough teachers who are good. Merely good teachers will not fill the needs that he foresees.

The sole hope of solving the problems of democratic government lies in the creation of "a leisure class" composed of teachers with the inclination to devote themselves to service of the government. . . . The teaching profession is in duty bound to raise the intellectual standard of the nation. . . . Recently I have placed a card in the cornerstone of a new building. On it I prophesied that by the year 2000 the people in the teaching profession in this country will have prepared themselves to serve as social engineers in solving the problems of democracy.

Where will they come from? You may be sure that the conference of educators in the Hotel Pennsylvania on April 12, 1930, did not ask such a question. They saw the engineering teachers arriving after two generations, saw vividly with their minds' eyes.

Yet no one reports that any such teachers are on the

way. And without such teachers—at least seven hundred thousand of them, actually at wooden desks and using material chalk and feeling the impact of bodily human pupils—without those beatified intuitional teachers in the flesh there never could be a national system of schools working magic and miracles. The only visible explanation of the hope of creating such ideal teachers is that the human brain instinctively puts faith in any glowing abstraction that promises release from facts. Nine capital letters, EDUCATION, have been as potent in America during the past twenty years as the vision of pearly gates and golden streets was fifty years ago.

And while we have been dwelling so long on the idealized teacher, have you been thinking of the pupil with whom she has to work? The pupil is more usually and more grossly idealized than the teacher. THE PUPIL is an abstraction who can absorb all knowledge, is on fire with all zeal, has an instinct for service and social cooperation, is capable of all virtues, is amenable to all improvement. THE PUPIL can be trained to all perfections by EDUCATION.

But the average small-letter young persons who have to be dealt with by actual small-letter education are only human beings. Most of them have very little knowledge. Experienced teachers know how truly some witty professor spoke when he said, "The power of the freshman mind to resist the intrusion of knowledge passes all understanding." The ordinary high-school pupil has less knowledge than the freshman and less ability to receive further knowledge. Instead of being on fire, he can wet-blanket the zeal of the average teacher. He has no more instinct for social service than a Professor of Education has when he takes a two-hundred-dollar fee for delivering an address. He is capable of no more virtue than you and I are. He can be improved only as much

as an educational theorizer can be taught the error of his thinking. The actual pupil is an ordinary citizen.

When Prof. E. C. Moore investigated the knowledge of actual American pupils, he found that a majority of them did not know that New York City is in the state of New York or that it is a seaport. Less than five per cent. of the actual pupils in high schools could pass a very simple and very leniently graded test on geography. Only a few years ago the University of Wisconsin found that a third of its freshmen could not distinguish between a grammatical sentence and a mere subordinate limb of a sentence—and Wisconsin is not worse off than other universities that have to accept freshmen from accredited high schools. When an actual teacher of an actual class tries to cultivate in all the pupils the habit of spelling *too* with two o's, she finds the undertaking impossible in the present status of American education. I once visited a third-year high-school class in which the teacher was patiently showing the mechanical details of the customary forms of civilized letter-writing. "Why spend your time with such a childishly easy subject?" I asked. "Because," she replied, "the boys and girls don't know it, and they must know it if they are not to be disgraced after they graduate; and they are hardly able to learn it even in this junior class." You may gather a bale of equally disconcerting facts if you talk a few hours with teachers of history or French or algebra. I know of a teacher of an advanced university course in banking who has found it necessary to devote one week of the course to a review of percentage. I know—to set down here a few dozen tales of the horrors of real life in American classrooms would avail nothing. If you know of them, your time would be wasted; if you don't know of them, you would think I was garbling the truth.

There is no PUPIL in American schools. There are

only ignorant young citizens who are as unideal as all the rest of the population of the Republic. But reason—proud and blind and abstract—converts pupils into a big-letter noumenon and then puts them into THE SCHOOL and transforms them by EDUCATION.

This overwhelming truth about the way reason works is now being expressed even in schools of education. George S. Counts has been a professor of education in five universities, and is now where all the best experts want to go, at Teachers College. He has studied education in other countries, has written several books, has a sensible mind, and dedicates his latest book *(The American Road to Culture)* to John Dewey. His opinions are therefore unlikely to be either fanciful or reactionary. He has this to say about magic and miracles:

Confront practically any group of citizens with a difficult problem in the sphere of human relations, and they will suggest education as the solution. Indeed this belief in the general beneficence of education is one of the fetishes of American society. Although the processes of tuition may be but obscurely understood by the popular mind, they are thought to possess something akin to magical power. . . . The faith in education becomes a faith in the school, and the school is looked upon as the worker of miracles.

What I should like to know is whether Mr. Counts, in his secret heart, recognizes that most of his colleagues at Teachers College are more superstitious about the magic of education than the "citizens" to whom he condescendingly refers. To practical teachers, at any rate, accustomed to facts and difficulties, most professors of education seem to be high priests of a kind of magic that is incredible to the ordinary citizen. The present orgies of reason at Teachers College will probably seem to the

educators of 1960 on a par with the belief of Luther that a bodily Satan came through his window. Their rites of "science" and "method" and "psychological technique" and "statistical procedure" and "evaluation" pass all belief of uninitiated mortals even now; after thirty years they are likely to seem in retrospect as irrational as the worship of Great Diana of the Ephesians.

You find it hard to take such statements literally. But any plain description of what goes on in the one hundred temples of capital-letter EDUCATION in the United States would sound like satire. A book would be needed for the description. In a chapter I can give only a few samples.

There are professors of education who devise systematic procedures for evaluating literature. I once had a glimpse of this sort of frenzy. It was given me by a professor in a school of education who was acting as chairman of a consulting committee of visitors in a classroom of his school. He was an affable and scholarly gentleman. He explained (with an apologetic smile that plainly said, "You see what sort of men I live with,") how a professor in his institution was then busy with a new test for determining, by rigorous scientific method, the comparative usefulness of different classics for promoting citizenship. If he does not consider such work a dreadful absurdity, then I have never understood one smile on any countenance.

Professors of education began almost twenty years ago to devise scales for evaluating school composition. The first one, the Hillegas scale, made its author famous as a pioneer in a great educational field. It was a set of ten samples of composition, ranging in length from fifty to three hundred words, arranged in a scale of merit, from the manufactured idiotic zero sample at the top to the high excellence of a college theme that had literary

qualities. Supervisors of English were to familiarize themselves with these ten samples and were to decide when they read any composition which specimen of the scale it most resembled in quality. Thus the merit of the composition was at once known, objectively, and could be rated by the grade of the sample. The scale was supposed to show the literary quality of a composition with something of the accuracy with which the figures on a thermometer show temperature.

The making of scales became the major occupation of schools of education. There were scales for spelling and arithmetic and letter-writing and all curricular subjects. Devices for evaluating the ability of teachers sprang up everywhere. For example, E. E. Lewis gives an account of the teacher-rating methods put forth since 1905, and finds that not one is proper. "A whole new field of research needs to be explored carefully," he says, "before final standards of teaching ability are possible."

Textbooks are being evaluated in every school of education by schemes similar to Franzen and Knight's:

I. Interest	200
II. Comprehension	250
III. Permanent value of subject-matter	250
IV. Value of Method	200
V. Mechanical elements	100
	1000

The method of Florence D. Fuller (who was still called a pioneer so late as 1928) is a severe process of preliminary analysis by special committees, questioning of publishers, work by a special committee on "certain elusive phases which had not been considered by the six analyzing committees"—etc., etc. A professor in a school of education has told me of a professor in another school of education (one of the most famous of the evaluaters)

who has developed a method of evaluating textbooks by a study of the purposes announced in prefaces. My informant thought he was not sensible.

You can see the guiding ideal—namely: teachers can make only impressionistic judgments of books unless they are guided by some evaluating method which is not considered sensible by other experts who devise other methods—and which is just ecstatic clap-trap to teachers who have ability enough to use textbooks.

The procedure for evaluating anything is usually in three steps: (1) gather all available data; (2) submit them to qualified judges who rank them in order of merit or importance; (3) determine the consensus of judgments by statistical means. This consensus, it is assumed, represents a real and objective standard.

I will indicate the result of one such procedure, which has at least the merit of being entertaining. A candidate for a Ph.D. in one of the largest schools of education in the country made a thesis on "The Social Objectives of School English." He gathered from authoritative sources 1581 purposes of the teaching of English that had been advocated seriously by persons competent to express opinions. These were formulated and catalogued, each on a card. They were then submitted to eighty teachers who could judge by their practical experience the relative importance of the objectives. Their votes were tabulated.

The result was that the consensus of eighty judges gave first place to "The ability to spell correctly all the ordinary words of one's writing vocabulary." The maker of the thesis had a sense of humor, and it is conceivable that he felt a malicious pleasure in this outcome. There was much sorrow about the outcome in the pedagogical journals, but they treated the thesis seriously, praised the thoroughness of it, and did not raise any question about the validity of a method that produced such a result.

They rejoiced in the objectivity of it. They avoided the patent fact that no educator would dare to maintain that the most useful objective of school English is spelling. No, they were concerned with the scientific technique. The technique revealed that the first five places of importance in school English (the subject which includes both composition and literature) should be assigned to mere mechanics: spelling, making complete sentences, being grammatically correct, etc.

The real value of the thesis to the cause of better education could not be mentioned by the student who wrote it, but he must have realized it: the thesis revealed what marvelous objectives had been solemnly proposed by those who direct the school destinies of American children. The ninth place—remember that this is ninth in a total of 1581—went to "The ability to think quickly in an emergency." Such an enviable ability can, of course, be communicated by the spirit of EDUCATION; but how Miss Loomis cultivates it in Dorothy Penrod could not be explained by a congress of all the pedagogical savants in the world.

Tenth place went to "The ability to speak the truth tactfully and efficiently." Would heaven that EDUCATION had conferred the gift upon me, so that I might now tell tactfully the truth about the superstition that is revealed in the notion of producing artificially a priceless innate gift. The truth is that many judges were considering the *values* of abilities, and not the *possibility* of imparting them in school. To tell this truth efficiently would be beyond the power of any satirist.

Eleventh place is filled by this beautiful quality of the soul: "An attitude of genuine desire to be constructive in one's human relations." Number 12 is "A taste for reading books of an excellent sort"; number 13 is "The attitude of maintaining the integrity of one's spoken

word as one's bond"; number 14 is "An attitude of alert interest in the world and all things in it." Not till fifteenth place does the list descend to any commonplace of mere English work: "Command over an adequate writing vocabulary." And that would seem ethereally impossible to any mere teacher who has to struggle with mere undereducated pupils. By the time we reach twenty-fourth place we have soared much higher than that: "The ability to use fluently and accurately a wide, accurate, and expressive speaking vocabulary."

Can you endure a few more of these spiritual objectives? 71: "The ability to supply from the context the meanings of words with which one is not familiar." 171: "The ability to be quick-witted." 271: "The ability to secure personal poise and spiritual calm from the experiential education received from persons and situations in books." We are still in the first sixth of the list, still within those objectives which were given a high rank by a majority of the judges. We had best not go much farther, but I will print three from the fourth hundred. 308: "The ability to assimilate from great poetry the logical, unified, spiritual law which underlies the seemingly illogical facts of human life." 349: "The ability to converse gracefully while eating." 381: "The ability to express meaning skilfully and precisely, in conversation, by means of silence." Beyond this point there are entries like "The ability to direct efficiently a group of persons in a common endeavor in a time of crisis." If I copied examples from late in the list, I should be unfair to the thesis.

The highest and most widely used kind of evaluation is the testing of intelligence. Of course "intelligence" has never been defined. The testers are good enough sports to recognize the truth in Thorndike's joke: "Intelligence is that which we test when we administer intelligence-

tests." But they keep right on testing. In all schools and colleges the rating of the mental ability of pupils is considered a prime function of education. And there may continue to be some sort of use for these systems of finding out the speed or ingenuity with which brains work on easy puzzles; for there seems to be some correlation between the skill shown in tests and a student's ability to master lessons. But within the past year signs have multiplied that this greatest triumph of Scientific Method in Education is going to become a faded relic in the museum of Expert Pedagogy.

Dr. Charles M. Stebbins has declared in an address to the National Education Association: "From my standpoint there is no such thing as an intelligence-test, because it is impossible by any mechanical process to determine the mental status of a pupil."

J. E. Morgan is an editor of the *National Education Association Journal,* and is on the Advisory Board of the Progressive Educational Association. He has talked thus to a New York *Times* reporter: "An intelligence-test does not measure intelligence. . . . To say that the average American soldier tested during the World War had the mentality of a twelve-year-old child is ridiculous. . . . These tests are viciously false."

Prof. George S. Counts passes this verdict on the whole testing movement: "An era of rapid advance seemed immediately ahead. The result was an orgy of testing that swept through the entire country. . . . The feverish and uncritical fashioning of tests has undoubtedly served to fasten upon the schools an archaic program of instruction and a false theory of the nature of learning and to mechanize the teaching process."

Dr. William Healy, though he is the author of a mental test, has also voiced a warning against the orgy of testing: "We can but wonder at the crudity of using psychological

tests in any mechanical way, as if human beings were machines."

But many Educational Experts, instead of heeding such cautions, are going forward with ever more feverish faith, devising techniques for testing, not merely intelligence, but such subtleties as "social resistance," "prejudices," "progressive attitudes," "international mindedness." Dr. June Downey can test character by having a person write "United States of America" under various circumstances. By interpreting the variations in the handwriting she can deduce the person's "co-ordination of impulses" and "volitional preservation."

Any citizen who wants to feel pride in American education can only wonder what excuse the teachers of 1960 will make for the mental condition of the intelligence-testers of 1930. Here's hoping that some sort of palliation will be found for them. Perhaps they will mercifully be regarded as victims of The Philosophy of Capital Letters, and dismissed to obscurity with that diagnosis. But you could hardly expect such gentleness if you knew what C. V. Good has recorded for posterity in *How to Do Research in Education:*

> One of the fathers of the testing and measuring movement has expressed himself as finding the true value of research, not only in the discovery of truth, but also in the supreme power of truth to harmonize conflict of human opinion and to make co-operation possible.

That way of regarding truth is so different from any observable facts of research in Education, so purely a mental creation, that it may have to be described by some pathological term.

The most alarming symptom of Educational Science is its use of two words—*constructive* and *creative.* Go into any library, look through the first twenty recent books

on education that you happen to put your hands on, and you will find that every uplifting passage depends for its impetus on *constructive* or *creative*. What the words mean I have no idea, but all my experience of them shows that they refer to purely mental processes. The *Stratford Magazine* calls itself "a periodical for creative readers." Dr. Bancroft Beatley, of Harvard, has told the New York State Teachers Association that they must equip students with "constructive educations." Professor Rugg has told the Association of Colleges and Secondary Schools that they should develop "the creative instinct," and Dr. C. H. Elliott, New Jersey Commissioner of Education, has declared that the "creative abilities" of students must be enlisted if democracy is to be saved. Stark Young, describing Herbert Croly, says: "He was somewhat gullible at times, but always creatively so." Hughes Mearns, a famous artistic school-teacher, calls himself a "creativist" and has written books entitled *Creative Youth* and *Creative Power*. New York University has created a chair of Creative Education specially for him. To say, in this present age, that a method of teaching is not constructive is to utter a curse, and to call it creative is to bless it. Watch the course of these two words in popular esteem. Today they are endowed with sacred mana. If they are taboo in serious thought ten years from now, you may know that Educational Science has been moved to some new foundation. At present it is founded on a psychic quality, Creativity, which is not discernible by people outside the cult.

Mearns loathes the very name of Science and Method as applied to education. He conceives that education is an art. All teachers before 1890 so considered it. If education is an art, it is no more reducible to a method by the literal-minded, jargon-writing Professors of Education than the arts of acting and salesmanship and being

humorous. Has science ever schematized any art? Every art depends upon a kind of skill that is unanalyzable. If, for example, the art of sculpture could be methodized, a sculptor could gather about him a class of intelligence-testers and make artists of them. If the art of writing could be scientized by Professor Bobbitt's system of training in power to think about thinking, an author could get together the professors at Teachers College and train them to make entertaining prose. Their dead and barren style, compounded of dry formulas and repetitious abstractions, the most repellent style ever developed by insensitive minds—this could be vitalized by science if scientific procedure can do what the Pedagogists are trying to do for education. Teaching is the art by which one intricate personality bends to its purpose other unaccountable personalities. Harold J. Laski considers it an art "as difficult and as complex as any in life." A good teacher can seldom give to another teacher any reliable account of how he works. Every successful employer of teachers knows that the good ones are born with a power which has never been detected in the ordinary Professor of Education. Very few professors of Education have any teaching skill whatever, yet they base their science on the assumption that they can develop the skill in others. Not since the philosophers of Laputa tried to extract sunshine from cucumbers has a more astonishing assumption lodged in human minds.

No Professor of the Science of Education has ever had an inkling of how good teachers, sitting docilely through his lectures, despise his clattering formulations; for if he did have an inkling, he would perish with chagrin. Occasionally one of these silent teachers writes an anonymous article to vent her feelings. In the *Nation* for August 28, 1929, you will find one. It is a composite of the hopelessly silly ideas rehearsed by a Professor of Peda-

gogy or printed in the assigned texts in a summer-session course that she was required to take "to get in touch with the latest developments." She concludes with a quotation from Goethe: "Nothing is so terrible as active ignorance." To teachers who know anything of their art the ignorance shown by Professors of Pedagogy is terrifying. Almost all of the successful high-school teachers feel just as this one does. Let that fact abide in your mind for the next decade.

The reviewer of Peter Sandiford's *Educational Psychology* in the London *Times* Literary Supplement describes the ignorance very courteously when he remarks: "There is not a single educational principle of the most elementary kind which is not at this moment subject to doubt and controversy."

The result of all the hurly-burly has been tersely described by Ivor Brown in the *Manchester Guardian:*

> Children are simply being nurtured for a series of gigantic sufferings. . . . That is why I feel nervous for the coming generation when I read of the remarks made by the more exalted educationalists in conference.

Men ignorant of the merest rudiments of the teacher's art are laying their clumsy hands upon those subtle processes, and refusing to let their exalted minds suspect that they are doing damage.

Dean Gauss of Princeton points out the damage to them if they cared to look at it:

> By the development of mere technique and jargon they are making of education, not a profession, but a mummery and a trade.

Professor Irving Babbitt, of Harvard, has told the educationalists how the rest of a university faculty regards them:

Our professors of pedagogy are held in almost universal suspicion in academic circles and are not infrequently looked upon by their colleagues as downright charlatans.

Bernard De Voto, an author and the editor of the *Harvard Graduates Magazine,* used to be a professor of English at Northwestern University. When he left that position, he published in *Harper's* for January, 1928, his feelings about schools of education. (To publish them while he was a member of a faculty would have been suicide.) Such acquaintance as I have with American universities—and I have been on friendly terms with professors of education in seven of them, in seven states—makes me feel sure that De Voto's estimate is not in the least exceptional. I quote bits of his article because I am confident that it fairly represents the majority judgment of university faculties:

In any other profession than pedagogy the incompetent and the brainless settle to the bottom, where they are impotent: and impostors, conjurers, and charlatans are soon placarded as such, so that their colleagues may deal with them. But in pedagogy they do not fare that way. They become Professors of Education. . . . Let me admit at once that some Professors of Education are both able and aware that their science is preposterous. . . . They may be charming fellows now and then, but they are accursed. . . . As a veteran of the colleges, and one who has done his share of soul-searching, I am convinced that the greater part of the present plight of the colleges is due to this group of uneducated fanatics, crazed enthusiasts, or wilful charlatans who have in the last fifteen years ridden into power. (Five or six Eastern institutions are exempt, let it be understood, from everything I say.) . . . It is they who have debauched the curricula and created the noise and stink and smoke-screen that envelop the profession. Borrowing everything that is

illegitimate in several sciences, incorporating with it several major sophistries, and begetting upon themselves a thing called "methodology" and other monsters, they have created what is known as the Science of Education. . . . This second Educator was no departure from the type. "What you gentlemen of the English department must realize," he told the score or more of us who were gathered to hear him, "is that you are not scientific." . . . He denounced us with his eyes, and then he said, "What, for instance, would you say was your norm for the appreciation of Shakespeare?" . . . And then there was the evening when we gathered to hear still another Great Educator. This one, like so many others, had about him the air of fanatic zeal I have so often seen in the prophets who come down from the greasewood slopes of my native state [Utah], crying the wrath to come. His eyes were fiery, and he was not in the least of this world, but was altogether dedicate to the mad voodoos of his faith. . . . The Great Educator whose madness I have described was not shut up in the booby-hatch. Instead his delusions were noised abroad, and presently came Trustees bearing incense and sandal-wood, and he departed from among us. He was made a college president. And that is what is wrong with the colleges.

The harm done to colleges is small compared with the harm done to the defenseless and overawed high schools. Let Knight Dunlap testify. He is a professor of psychology at Johns Hopkins and edits two psychological journals. Here is his estimate of the Educationists:

The dominant social group turns over the schools to political spoils systems and the machinations of professional educators interested in the building up of powerful educational machines; and thus doubly to degrade the schools. . . . It is rapidly becoming impossible for a teacher to get an education even if she should want it, because the constantly increasing requirements for courses in the technique of teaching, in "educational psychology," "experimental education," and other things leave no

time for the teacher or the prospective teacher to learn anything else. This procedure, of course, builds up great departments of education in our universities and colleges, and powerful systems in the State schools.

Dunlap is not a reactionary or a man with a grouch. He has been one of the leading assaulters upon the old mystical psychology and has pioneered in some new fields of experiment.

His accusation that schools of education are building up powerful machines for self-aggrandizement is one of the commonplaces of campus talk from Morningside Heights to Berkeley. It has recently been formally expressed by a committee of the Tulane University chapter of the American Association of University Professors. The committee drew up a list of eight convictions which it asserts are current in college faculties. Remember that the language of the committee had to be guarded and ceremonious. The quotation marks are in the report.

1. That the importance of professional courses in "education," especially courses in "methods," is overrated and that prospective teachers are required to devote too much time to this phase of their preparation.

2. That the statutes and laws, passed by state legislatures, prescribing required work in such courses, tend to over-emphasize the importance of such courses.

3. That the enactment of legislation of this type, under the direction of Departments and schools of Education . . . is a grave mistake in educational policy.

4. That the emphasis placed upon training in methods and other professional "education" courses . . . has not improved the teaching in secondary schools.

5. That it is at present impossible for young men and women with the Master's or Doctor's degree, even if of exceptional brilliance and trained by the greatest authorities in arts and sciences in the country, to procure teach-

ing positions in secondary schools *unless* they have devoted the legally prescribed time to courses in methods and other professional "education" subjects.

6. That in many institutions the appointment machinery, the purpose of which is to place teachers in state secondary schools, is controlled by the Departments or Schools of Education, and that these appointment offices consequently show a disposition to refuse to recommend candidates who have not met the special requirements of such Departments and Schools of Education.

7. That at the last meeting of the Association of American Colleges resolutions were introduced tending in the direction of imposing requirements in professional training courses in methods, etc., upon candidates for the Ph.D. degree, this being the first step in the direction of compelling college professors to meet requirements of the general type now imposed upon teachers in primary and secondary schools.

8. That such individuals and institutions as are of the opinion that too much time is required for professional "education" courses are absolutely helpless to attempt to bring about any modification, since the state secondary educational systems are entirely under the control of teachers, principals, and superintendents who are graduates of professional "Schools of Education," and since it is through this organization that enactment of educational legislation is influenced and controlled.

The Tulane committee formulated nine questions to guide deliberation, of which I quote the first two:

(a) Of what value are professional courses in "education"?

(b) Is the fundamental assumption upon which professional "education" courses are based sound? . . . If so, how is it that professors of "education" do not need to take courses in the manner of teaching courses in the methods of teaching?

The report of the committee was unanimously adopted by the Tulane chapter, and the American Association appointed a committee of five to carry out the suggestions: professors from Brown University and the universities of Iowa, Virginia, California, and Indiana. This national committee reported in December, 1929, advising an investigation into the claim of Education with a capital *E* that it was useful in the actual work of teachers. I quote three passages:

There is need now of objective tests such as our colleagues in Education and Psychology have devised with much ingenuity to control results in other academic fields. For example, one of the oldest and best-known institutions in the country has never had a department of Education, and therefore its students have never taken a single course in that subject. Yet hundreds, perhaps even thousands, of its graduates are actually engaged in teaching throughout the nation. Is it notorious that these men are less successful in the classroom than their colleagues from other institutions? And if so, can this fact be objectively demonstrated? The eastern states as a rule have been less alert than those in the Middle West and Far West to impose requirements in Education upon teachers. Can it be objectively demonstrated that the teaching in eastern schools is inferior to that in other states of the country?

Only by an objective demonstration can the representatives of Education hope to dispel the skepticism with which required work in their department is now regarded by *the vast majority* of college and university teachers in other fields.

What is being done in this instance [that is, in this report] is altogether due to the activities of the friends of Education in an effort to impose these requirements upon college and university teachers. . . . The requirements for Education on the secondary level were never imposed by the consent of the governed (i. e., the teachers themselves) nor by the wish of college or university

faculties (apart from the professors of Education). They are chiefly due to political control.

Since I have never met (outside of Schools of Education) any teacher or professor who had any shred of respect for Education with a capital *E*, I expect that the Tulane report will go down in history as a momentous declaration of independence. I expect Education to die, just as every similar delusion has died when men checked it against the facts of existence. Education will then appear in history as one of the most instructive examples of how the human mind—so proud, so eager to dominate in society—always tends to reason confidently and to be incurious about verifying its conclusions. It tends to thobbery.

CHAPTER XVII

War

"It is so much easier and more alluring to speculate as to the how and why of war than to grub for the facts." So says Maurice R. Davie in his preface to *The Evolution of War.** In every field of thought our reason prefers speculation to facts. For we can feel ourselves rising on speculation as an eagle mounts upward upon wings and are exhilarated by the flights of imagination. Above us is the great sun of Truth. As our reason soars farther and farther toward the Truth, we feel that we have reached it. We spread the pinions of our mind in its glorious rays, and are proud. But to stay on earth, to walk, to look downward as we search for dirty facts—our psyche cannot endure such a grubbing life. It must speculate about education and war.

Henry Adams has described our dread of scientific facts and our instinct for flattering ourselves with flights of speculation:

> Man refuses to be degraded in self-esteem. He yearns for flattery, and he needs it. The contradiction between science and instinct is so radical that, though science should prove twenty times over that man is a thermodynamic mechanism, instinct would reject the proof; and whenever it should be convinced, it would die.

The facts about education and war are so unflattering that our reason instinctively rejects them. Any orator will be applauded if he scornfully calls undisputed facts

* An excellent summary, with a wealth of illustrative cases, of what war has been among primitive peoples and of the similarities between primitive conditions and modern conditions.

"mechanistic" and if he pours forth pleasing words about noble intuitions and spiritual qualities which cannot be verified by even a minority of philosophers. The instinct of reason flies to this self-flattery. It would die if it were condemned to grub for the earthy facts about war.

To argue that reason is wrong in its preference would be like trying to prove that gravitation is a mistake. Gravitation is the way matter acts, and no man would be such a fool as to find fault with matter for having such a nature. The instinct of reason for flattering itself with speculation is the way the mind acts. Anyone who hoped to reform reason, or who ridiculed reason for being what it is, would be like an astronomer who objected to the weight of the stars. It is the business of an astronomer to measure the masses of the heavenly bodies. It is our business to observe the instinctive dread of facts which is the prime motive force of human reason. The instinct is well displayed in the efforts of reason to explain war.

Eight years ago the best reasoners of the country were in a state of high excitement about plans for doing away with war. They were competing for a prize of $100,000 to be given by E. W. Bok for the best thinking on "How to Avert War." Mr. Bok thus explained his faith in a mental process of rescuing mankind from the horrors of hatred and slaughter that loom in the path of civilization:

> This is the time to crystallize public opinion. . . . I believe firmly in the creative adaptability of the American people. They have a natural gift for the creative. . . . My idea is, singly and solely, to search the American mind for an idea, an idea born of the straight-thinking, ideal-loving, and fair-minded American people.

When all the thousands of competing ideas had been assorted, the manager of the Peace Award announced: "Virtually all of them look toward conference and dis-

cussion." A New York *Times* editorial said of the samples printed one Sunday, "The plans illustrate attitudes of mind on the part of persons of outstanding abilities." A *Times* article gave an account of the sixty plans for averting war that had been put forward in the last six hundred years by special students of international peace. The article described "the steady growth of the peace idea—a widening stream tumbling in two places over waterfalls which sent up a spray of suggestions." Two years later the newspapers celebrated the winning of a $25,000 peace prize by David Starr Jordan, who had been president of several peace societies and had written a book called *Ways to Lasting Peace.*

I cannot recall that during those years of creative thinking about peace I read any article or book which described the search for plans as futile. Intellectual America seemed to think well of the search. Yet peace plans are not listed in Mr. Davie's index of the facts of war; I never see any reference to them in present discussions of war; they seem to have been an evanescent cloud of creative thinking which was dissipated almost as soon as it was formed. Planning for peace appears to be mental exercise which flatters the pride of our reason and which has no relation to such facts as Mussolini and a Red army and Chinese war-lords and secret French treaties and German resentment and American naval policy.

Peace plans need not be absurd because the thinking in them grows mouldy. If that point is not clearly understood by a reader, he will miss the meaning of this chapter; and I must therefore stress the point. Perhaps the real purpose of peace plans is to advertise the horror of war, to suggest that peace may be possible, to rouse our emotions, to set our hearts against war. If we are ever to escape from war, we must be emotionally stirred to hatred of war and desire for peace. Strict logic will not

stir the public mind. People are moved to action by rhetorical appeal, by a showy display of their supposed powers of mind, by exhortation that flatters their pride in their virtues. Hence it may be that the publicity of the mass of thinking about peace deeply influenced millions of people whose attention would not have been attracted by any amount of grubbing for facts. A fact-finder who laughed at peace plans might be a blind and mistaken cynic. This chapter is not making fun of the purpose—and very likely the wisdom—which lay behind the giving of prizes for essays on peace.

This chapter is only talking about the quality of the reasoning in those essays. It is a study in the pride of reason. The thinking that goes to the making of peace plans is detached from all curiosity and from all desire to verify itself. The planning for peace is carried out *before there is any agreement as to what causes war.*

That fact is enough to stop an author's mind. He is helpless before it. If he dilates upon it, he may appear not to give his readers credit for intelligence; but if he calls no attention to it, he may leave some readers unaware of the amount of entertainment that can be extracted from those ten italicized words. Think of planning to rid the world of tuberculosis before medical students had agreed on the cause of the disease. Think of planning to rid our roadsides of bill-boards before we knew what caused bill-boards to be set up along the highways. Try to think of any parallel case in a field of endeavor that is subject to check-up by facts. Innumerable parallels can be found in sociology and education and economics and political science—where the elements are so complicated and elusive that facts seem to be contradictory, and can be cited on either side of an argument, and therefore do not impede abstract thought. But seek for some similar disregard of facts in business—say an

attempt by the treasurer of a company to get rid of a troublesome overhead expense before he knew what overhead is. Planning to get rid of war while the intellectual world is utterly at a loss as to what causes war is as marvelous an undertaking as—oh, a man might as well try to illustrate Pike's Peak out of a book of synonyms. The fact is mountainous. Further paragraphs of exclamation would be an impertinence.

I will arrange two exhibits of the marvels of incurious thinkings about the causes of war and the cures for war.

EXHIBIT A: THE CAUSES OF WAR

After the Bok prize of $100,000 had been awarded, and then the Herman prize of $25,000, it occurred to the editor of the *Forum* that it would be good journalistic enterprise to publish a symposium on "What Is War?" Eight noted thinkers were engaged to contribute to a series that began in September, 1925, and ran through eight numbers. The editors introduced the series in these words:

> On November 11, 1918, we had our day of gorgeous, emotional inebriety. Gradually we came to. Today we are fully awake. Ask us what the war was about, and we smile wanly and change the subject. Today we know that the war to make the world safe for democracy brought, in truth, a reaction against democracy. The war to end war brought multitudes of little wars. In its foaming wake there is the threat of greater wars. . . . Behind all plans and opinions the profounder aspects of war persist. Why is War? Are its causes simple or complex? Since we cannot agree upon the causes of the greatest and most recent war, it is evident that these questions will require an extensive research to be adequately answered.

H. P. Fairchild's opening article began by showing the falsity of ordinary notions about the causes of war. It proved with scientific certitude the one cause:

Is there, then, any *one* cause of war? If we push our inquiry beneath the surface of the multitudinous and apparent causes of specific wars, there emerges an almost universal and fundamental objective in war—land.

The second article was by F. A. Woods, author of *Is War Diminishing?* He affirmed that war is a natural condition of human life, that very little is known about the causes, that there is a "self-sacrificing war instinct" which promotes it, and that it must continue for a very long time. The third and fourth articles, by E. M. East and Havelock Ellis, urged the need of eugenic improvement; they made hardly any reference to war. The next three articles—by Stefánsson, Spinden, and J. T. Nichols, explained how to secure an increased food-supply by using the resources of the far northern lands, the tropics, and the oceans. If these three men were telling anything about the causes of war, they united in giving the impression that the chief cause is lack of food. The last article of the series was by Ellsworth Huntington, the noted geographer, who contended with all the force of his wide knowledge that no great increase of food could be expected from the north or the tropics or the oceans. He asserted that he was "striking at the root of the whole problem of peace or war." The root was this: "The *kind* of people in a country is far more important than the number." He proposed to improve the quality of the population of the United States by paying the most competent young foreigners in all lines ten thousand dollars a year to come here and live. "Their average ability," he said, "would be that of the persons registered in *Who's Who*. The effect of doubling the most competent parts of our population, with a corresponding diminution in the ability of foreign countries, would be almost incalculable." Apparently (though this is only implied) war

would have to cease when America attained such a preponderance of competence.

I have never recovered from the bewilderment caused by these eight scholars who showed my dazed mind how far the best efforts of reason fall short of any knowledge about war. These men, in their regular pursuits, rely on scientific verification. They produced a mélange of land and reindeer and subsidized intellectuals that could not be paralleled in all the vagaries of medieval theology. They left us absolutely at sea as to the cause of war, and all in the fog as to the cure. But the world is so full of other lively reasonings about war that we had best not spend time with this corpse of a symposium. I offer a display of the principal causes of war as analyzed by our best reasoners.

1. *Population pressure.* It is very generally agreed that the growth of population, causing a need of more land to live on, has been and now is a chief cause of war. Yet there have been reasoners who doubted this cause, and it is hard to find in all the discussions of the origin of the World War a convincing proof that desire for land had a direct influence.

2. *Business.* Henry Cabot Lodge conceives that business is the greatest cause of war. "These business men," he says, "would hotly deny the charge. But their activities are, in fact, contributing causes of war. Yet they do not realize it, and neither do the most active and energetic pacifists. That is the worst of it: the chief causes of war are unconscious and unthinking; they spring from apparently peaceful pursuits." Henry F. Grady, Dean of the College of Commerce of the University of California, agrees with Senator Lodge: "War is national economic aggressiveness. . . . Wars may not always have been due to economic causes, but it is certain that they have been so in the last one hundred years of the world's history."

3. *Patriotism.* Many notable publicists are convinced that patriotism is the deepest and most compelling force which tends to produce war. Rulers are able to incite their peoples to war by appealing to pride in the nation and to the duty of fighting for the nation. Prof. F. H. Hankins, of Smith College, describes the influence thus:*

Patriotism gives full sway to fear, unbridles the lust and brutalities of savage man, intensifies our innate suggestibility, and subordinates the mind to every sort of delusion and deceit.

Another name for patriotism is "nationalism"—that is, the pride in one's own country. J. M. Kenworthy, whose *Peace or War?* is a careful analysis, says: "Nationalism is of recent origin. It has spread across the world like a modern scourge. It has been the principal cause of wars since the downfall of Napoleon."

Yet John Carter's opinion is directly contrary: "Nationalism as an actual political force is today as moribund as feudalism in the days of Cervantes."

4. *Greed.* Davie's Chapter VI is "War for Land and Booty." A. M. Tozzer's judgment is that "the motives behind organized warfare are advanced notions of property." There is very general agreement that the desire for wealth has, in the past, been one of the prime motives to war. Yet no comment on the World War is so frequent as that its cost was many times what the most rapacious nation could have hoped to gain by it after the most complete victory. And Norman Angell's calculations before the World War showed that no nation can hope in future to gain as much as the cost of a war. Thus it would appear

* For this and four other quotations later in the chapter I am indebted to Harry Elmer Barnes's capacious and most useful storehouse, *World Politics in Modern Civilization,* which I heartily commend to every reader who is curious to know what war is.

that "Greed"—that is, planning war for the sake of booty—is the opposite of "Business," which leads to undesired and unexpected war.

5. *Fear.* There is general agreement that fear of being attacked has been a stronger impulse to war than the hope of plunder. Especially is this true in the twentieth century. The historians who try to appraise the guilt of the various nations for the World War agree that France and Germany and England were motivated far more by fear than by desire of gain.

6. *Religion.* Davie's Chapter VIII is "Religion as a Cause of War." He makes the following comments:

> Religion has at all times led quite as much to war as to peace. . . . Among civilized men perhaps the fiercest and most persistent of wars have been those waged on account of differences of religion. . . . The natives of Rotuma never used to wage war on account of different religious beliefs, but since the island has become Christianized they have taken up that practice. . . . Only advanced peoples wage war on account of religious differences. . . . The evangelization of the world has usually been undertaken by the sword.

Harry Emerson Fosdick corroborated Davie in a sermon that he preached at Geneva in 1925:

> In the early days Christianity joined with the state, became sponsor for war, blesser of war, cause of war, and fighter for war. Since then the Church has come down through history too often trying to carry the cross of Jesus in one hand and a dripping sword in the other.

Whitehead lists, among the horrors which have always attended religion "hatred between races." John Bakeless puts at the beginning of his list of causes of war "differences of race and religion."

7. *Pugnacity.* It is very generally believed that most men are not pugnacious, that they flinch from war, and that they have to be roused to war by the devices of propaganda. There is certainly reason for this belief. We can all testify that many young men of our acquaintance are not eager to go to war. It is notoriously true that the soldiers at the front do not usually hate the enemy or lust for his blood. Innumerable testimonies have been given that the ordinary citizen dreads to go to war.

But, strangely enough, the evidence on the opposite side is quite as great. Bertrand Russell was not setting forth any novelty when in his *Sceptical Essays* he asserted that men have an instinctive desire for war:

> The impulse to war has always existed, but it did not in the past have the same intensity or virulence as it has in our day. . . . It is a mistake to attribute a vast upheaval like the late war merely to the machinations of politicians. . . . In England, Germany, and the United States (in 1917) no government could have withstood the popular demand for war. A popular demand of this sort must have an instinctive basis.

When Norman Angell was a young man in California, he published some of his impressions of the pugnacious state of mind of America in 1897: "It would seem that the nation is set upon warfare of some sort. For months we have been spoiling for a scrap." He quoted from an article by R. N. Shaler: "We appear to be driven by a blind impulse into modes of thought and action concerning our neighbors that will, if unchecked, bring us to contests of arms." Angell spoke of the warlike utterances of thoughtful men: "The better class of our public men and our clergy seem the very readiest to add fuel to the flame. Nothing has been more extraordinary during the last few months than the servility with which our pulpit has

kow-towed to the worst passions of the multitude. I could reproduce here sermons which in their vague warlike mysticism were fitter in the mouths of dervishes than of Christian men. And these incitements to strife only occur when the feeling of the people is already warlike."

Norman Angell considered that what he saw of the warlike instinct in California was an example of a universal truth. He quotes Kingsley Martin's account of how the editor of the London *Times* in 1853 was driven to advocate a war with Turkey in which he did not believe: "No one who reads the story of 1853 can fail to see that it was the public which led and the *Times* which followed." Angell's comment is: "This passage would serve to describe accurately enough that process of change in editors, clergymen, teachers, statesmen, and the ruling class generally, which *every war in every country* can be depended upon to bring about."

Thirty years after Angell's observations in California, J. F. Scott published a study of the public demand for war as reflected in the press of Europe just before the outbreak of the World War. He called his book *Five Weeks.* The number before each quotation refers to the page.

19. It is the contention of the writer that the influence of public opinion in certain countries during the diplomatic crisis of the summer of 1914 was the most important factor in precipitating the war.

97. The spirit of public opinion on the verge of a war is the spirit of a bully; it will brook no opposition at home.

168. "People of all classes are enthusiastic at the idea of a war against the forces of Germanism." (A reporter of the London *Morning Post,* July 25, describing public opinion in Russia.)

228. "No governments are so immediately influenced by national opinion as autocracies," said the *Daily Ex-*

press, July 27. "It is probable that if Austria went to extremes the Czar would be forced to bow to national sentiment."

242. Mr. Lloyd-George once said that if a poll of the electors of Great Britain had been taken on August first, it "would have shown 95 per cent. against embroiling this country in hostilities. . . . A poll on the following Tuesday would have resulted in a vote of 99 per cent. in favor of war. . . . What had happened in the meantime? . . . The revolution in public sentiment was attributable entirely to an attack made by Germany on a small and unprotected country which had done her no wrong."

257. By August first public opinion in Germany, France, Austria, and Russia was in such a state of excitement, and was at the same time so determined not to yield on the issues in controversy, that war was inevitable.

273. It is incorrect to say, as it has often been said, that peoples are always peace-loving and only governments are bellicose. It is true that in normal times the normal man abhors war. But in times of intense national crisis the normal man becomes abnormal. . . . In the surge of public opinion in the various countries—and not in the orders and telegrams of statesmen and diplomatists—lies the fundamental explanation of the disastrous outcome of the crisis.

Many of the analyzers of war would not for a moment concede that, as Scott puts it, "the normal man becomes abnormal." It taxes our imagination to conceive that more than ninety per cent. of normal Englishmen became abnormal in three days because a German army crossed Belgium. All depends, of course, on what is meant by "abnormal." If it is abnormal to desire war, then Mr. Scott is right. But on that assumption hangs the whole wide generalization with which he concludes his book. The question of what "abnormal" means is fundamental to an understanding of what war is; and Mr. Scott gives no hint that there is any difficulty about a definition.

But actually the difficulty is as deep as the mystery of what war is. Scott's definition is denied by an endless list of competent reasoners about war. "Men like war," is the opening three-word sentence of Davie's chapter on "War for Glory." The assumption underlying the chapter is that normal men like war. "Civilized peoples," says Davie, "are not different from primitive men in this respect. . . . Not necessity, but national vanity, is too frequently the cause of aggression leading to war."

Bertrand Russell has described how he felt a painful scientific interest in analyzing the cause of the World War during the first few months of it:

I observed that at first most of those who stayed at home enjoyed the war, which showed me how much hatred and how little human affection exist in human nature. . . . I soon became convinced that popular passions enthusiastically supported governments in all the steps leading up to war. . . . The important question, then, is the psychological one—"Why do people wish to fight?"

Russell gives not the slightest indication that he thinks people are abnormal when they desire war. He thinks the desire for war is a deep-seated and normal frame of mind.

The very name of John Carter's book is an assertion that normal men delight in war—*Man Is War*. We can realize the fitness of the title if we consider one of the frequent newspaper accounts of the hostilities in religious conventions—for example:

Dr. Wishart opened the session of the Presbyterian General Assembly with a scathing denunciation of warfare between nations. He urged the supplanting of the war-mind by the peace-mind. . . . There was a struggle over the pacifist resolutions. The delegates shook fists at each other.

Or reflect on the commonplace accounts of fighting in national legislatures, like this description of the French Chamber of Deputies:

Yesterday's resolution to conduct the religious debate in good order broke down today. There was an indescribable and continuous din, with half a dozen fist-fights in progress in different parts of the Chamber.

When Swift spoke of war as "that mad game the world so loves to play," he probably meant the words literally. Henry Adams, so different a man from Swift, with so much knowledge of the two centuries of war after Swift's time, expressed the same judgment more strongly: "Man has, from the beginning, found his chief amusement in bloodshed."

This review of the principal causes of war should make any careful mind—if it is curious about facts—suspect that nothing is yet known about the nature of war. Human emotions are so complicated and wayward that only some unemotional mind from another part of the universe could be trusted to make a reliable analysis of them. Every writer about war seems to have his powers of observation magnetized, so that the compass of his reason cannot point north, but aligns itself with the bias of his temperament. If he has a mild and affectionate disposition, his reason will point to folly and abnormality as the cause of war. If his disposition is contentious, his reason will point to unchangeable human nature as the cause of war. If he is the sort of person who relies on logic, his reason will veer to some abstract cause of war like "nationalism" or "fear." If he is of a buoyant temperament, he will decide that war is caused by designing governments which inflame public opinion, and that war will be cured as soon as the plain common people take the war-

making power away from the political leaders. If he is fatalistically inclined, his reason will inform him that the plain people drive unwilling governments to declare war. Reason boxes the compass and points all ways to the origin of war. This fact will be obvious to anyone who examines the first dozen books on war that any librarian recommends to him.

I have yet to see any book or essay which faces this fact. If it is true that nearly all students of war have thought confidently and have not been cautious in the midst of the great welter of conflicting opinions, then you would suppose that any author with a scientific bent of mind would distrust his own skill, would arrange a scheme of all the major opinions, and would then show to what extent they canceled one another. I have not seen such an attempt. I have seen only fitful starts in that direction, made by an occasional reasoner.

If it has been so impossible for reasoners about this most common and ancient and obvious element in society to keep from absurd contradictions of one another, how much less possible must it be for the scholars to do any reliable thinking about other social matters. War is a far more simple and uniform institution than marriage or property or drinking or punishment of crime. Yet reason can come to no agreement about it. How, then, can we feel any assurance about the product of sociological thinking when it deals with taxes or beverages or electrocution? This subject of war goes to the boundary of all reasoning.

As a typical example of the efforts to think straight about such abstractions as democracy or war, inspect the brain-work of C. Delisle Burns in *Democracy: Its Defects and Advantages,* 1929. Mr. Burns is professor of citizenship at the University of Glasgow, has held positions in the League of Nations and the Ministry of Reconstruction

and the Labour Office, has been a lecturer in philosophy at the universities of Oxford, Cambridge, and London. If ever any man was competent to think straight, Mr. Burns should be. Exercise your analytical powers by following the chain of argument that he forges on page 103. Note each successive step (which I have numbered):

(1) Modern nationalism is a disease of democracy in its nursery. Upon this depends the institution called war. (2) Obviously this modern nationalism is not the origin of war, which was common long ago. Nor is nationalism the cause of war; for different wars have different causes, and there is no one cause for wars as a class. (3) But the tendencies, habits, and instincts, which find an outlet in the preparation for war, are in our time most actively organized in that peculiar attitude called nationalism. (4) War cannot, therefore, become obsolete until the present form of nationalism disappears.

Not more than one reasoner in three believes that nationalism is a disease, or that war depends on this disease, or that we cannot get rid of war until we get rid of nationalism. Yet Mr. Burns makes those statements without any reference to the fact that they ludicrously and cockily deny what two-thirds of the other thinkers assert with equal cockiness. Mr. Burns has been invited to lecture at the Williamstown Institute of Politics, and his utterances have been reported with deep respect. Where should clear thinking be honored if not at Williamstown? It would seem that it is bad form for a reasoner to take any notice of what other orators and authors think. Men argue with more satisfaction, and are more approved by readers, if they ignore the existence of opposing arguments. To me this is a more amazing trait of human mentality than our warlike instinct.

When Mr. Burns says that nationalism is not the cause of war, he pays no attention to the contrary opinion,

frequently expressed in modern essays on war—for example:

The World War was a product of obsessed nationalism.—Harry Elmer Barnes.

Nationalism and capitalism produced armed and opposed powers within each country.—J. A. Hobson.

Modern nationalism has been the principal cause of wars since the downfall of Napoleon.—J. M. Kenworthy.

In John Bakeless's list of fourteen "real causes" of war there is no mention of nationalism, nor is the term listed in Davie's index.

Thus we see, on the best of authority, that (1) nationalism is the chief cause of war, (2) is not worth mention as a cause, (3) is an attitude in which the causes are organized. Not one of these authors hesitates because of the weighty opinions opposed to his theory. Each author names the causes of war as confidently as a theologian asserts a creed that is opposed to a hundred other creeds. No author seems curious about all the conflicting opinions. No author is concerned with assorting them to show *the mere probability* that some are better accredited than others.

John Bakeless dismisses all the fourteen causes of war which have been generally listed as "real" and tells us without a quiver of diffidence that "none will be of great importance in future wars." He knows—whether by intuition or logic or observation I cannot make out—that "The increase of population and the rise of the industrial system are the primary causes of all modern wars." Possibly he would explain that these causes are "organized in nationalism" and that he means what Burns means. Or possibly he could explain that he means what Barnes and Kenworthy mean. There is no certitude

amidst these proud generalizings that inform us what the oracles know about the cause of war.

John Carter dismisses the reasons of Bakeless and of all other reasoners:

> The truth is that nations do not realize why they fight. Western civilization seems to go through an orderly cycle in the causes of war—religious, dynastic, commercial, nationalistic, and economic. In each war there are, of course, all these elements, but one cause usually predominates, and that one is nearly always mistaken by the public opinion of the time.

Absolute knowledge like Carter's has always been at the command of religious reasoners, and very often has been possessed by philosophers and psychologists and sociologists. But men who are impelled by mere curiosity have never had it. The probability of the truth of any one of these haughty dictums can hardly be more than one in fifteen. How, then, can a man put confidence in any one if he is really seeking for the strongest probability? I know of only one answer that seems to fit the case: Men are confident in their reason, are not interested in facts, are not curious about probability. Unless a man is confined by some inexorable material, like the weight of lead or the speed of light, he infallibly runs wild in thobbery. The discussion of the causes of war is one of the most convincing illustrations of this instinct of our proud reason.

EXHIBIT B: THE CURES FOR WAR

I once knew what proposed cure for war won the $100,000 Bok prize, and what proposed cure won the $25,000 Herman prize. Perhaps I ought now to refresh my memory and give a description of these plans. But if I did so, I should be accused of dealing with dead

bygones that no longer signify. So I will pass by those ancient remedies of eight years ago and will describe only the most recent prescriptions made by the doctors of war.

1. *Internationalism.* It is fashionable nowadays to be internationally-minded. The scholar who sees the evil of nationalism and the necessity of internationalism is in the ascendent. No cure for war is more favored by men of vision than eradicating all narrow national patriotism and grafting upon the public consciousness the international mind. Not much progress has yet been reported in this operation. No program of specific actions has met with general approval. The very large majority of war-thinkers pay small attention to this remedy. But it remains the one in which the creative intellects take most satisfaction.

2. *Finding facts.* This cure hardly deserves mention, because it is held in small esteem and little has been heard of it. But it has been the professed purpose of the Institute of Pacific Relations, which tries to find out, not "What ought to be?" but "What is?" Presumably no advocates of other cures openly deny the usefulness of fact-finding, but their silence about it seems contemptuous.

3. *Devising substitutes.* William James, that engaging and inventive philosopher, once wrote an essay on "The Moral Equivalents of War." John Dewey thinks highly of his effort to teach the human race that it might—as boys work off steam by some active play—devise ways of turning its warlike energy to some kinds of strenuous peaceful endeavors. Four years after the close of the World War he praised James as follows:

> An immense debt is due to James for the mere title of his essay. It reveals with a flash of light the true psychology. . . . The suggestion of an *equivalent* for war calls attention to the medley of impulses which are cas-

ually bunched together under the caption of "belligerent impulse"; and it calls attention to the fact that the elements of this medley may be woven together into many differing types of activity, some of which may function the native impulses in much better ways than war has ever done. . . . Social conditions, rather than an old and unchangeable Adam, have generated wars: the ineradicable impulses that are utilized in them are capable of being drafted into many other channels. . . . A general social reorganization is needed. . . . Hinton was doubtless right when he wrote that the only way to abolish war was to make peace heroic.

It is intellectually respectable for a philosopher to contrive mental tapestry of that sort, embroidering designs of "drafting ineradicable impulses into new channels," of "making peace heroic." In these intellectual patterns we will not tolerate any curiosity about the facts of human nature. We loathe any question as to "reorganization of society." We should be disgusted if any critic inquired about the probability that any large fraction of the human race ever could regard peace as heroic. The best minds shudder at the suggestion of verifying these bright patterns. The best minds are awestruck by a philosopher's weaving of the glistening strands of fancy.

Sometimes when I realize with special vividness the utterly fantastic quality of the cloth of gold that comes from Deweyesque looms, I feel lost in a daze. I wonder how mankind can engage in such an absurd occupation. There have even been moments when my brain has thought of trying to advertise the absurdity, with the purpose of persuading a few intellectual people to abandon such a practice. But I have instantly laughed at myself. For the philosophical way of reasoning about war is just as innate as the belligerent impulse. If I

argued against the reasoning, I should be just as wrong-headed as a philosopher who draws sketches of making peace heroic. Man is philosophical, and man is warlike. The desire to change him is no more sensible than the desire to dam the Gulf Stream. Man is now spending as much money per month in preparing for war as he ever spent previously; and man is now pouring forth more philosophy about war than ever he vented in any other age. Man is what he is.

"The heart is deceitful above all things: who can know it?" So said Jeremiah of old, and we must repeat his wisdom today if we would discover anything about the depth of the mystery of philosophy or war.

4. *Disarmament.* This is the most widely popular of all the therapeutic devices. It is a concomitant of most of the other remedies. Among the more hard-boiled reasoners it is not in favor, and the world seems to be growing hopeless of it, because the international conferences have made no headway in reduction of armaments. There seems to be no doubt that the directors of the armies and navies of the nations are working harder than ever before to keep ahead in the rivalry for the most efficient armaments.

5. *Conferences and pacts.* The world is periodically excited by conferences for promoting peace. Men who are familiar with the internal conditions of these conferences continue to warn us that all the talking is a mockery. They say of every such meeting what Robert Dell said of the London Conference in the spring of 1930: "It has never been a disarmament conference, but a competition between the Powers represented at it to maintain their present naval strength, relatively to the other Powers, at the smallest possible cost." No strong evidence has ever been adduced that peace conferences meet in a spirit of peace. All that the expert observers will allow us to

hope is that peace discussions advertise the desire for peace. And that is no slight matter.

As for anti-war agreements, let Prof. E. M. Borchard's judgment about the Kellogg Pact stand to represent a wide and well-founded suspicion about any similar pact:

> The treaty constitutes no renunciation or outlawry of war, but is, in fact and in law, a solemn sanction for all wars mentioned in the exceptions and qualifications.

Those exceptions are of such scope that the *Manchester Guardian* thinks they make "the loopholes for war wider than before."

6. *Outlawry.* The most logical and simple way to get rid of war is to pass an international law against it. So practical a man as Lieutenant Commander J. M. Kenworthy, M. P., has written a book to argue for outlawing war:

> The vicious circle is complete. It can only be broken by altering our whole idea about war. War must be ruled out as an illegality.

So influential and forward-looking a thinker as H. G. Wells endorses the argument.

The trouble is that a large and influential body of reasoners would not only have to alter their whole idea of war before they could see any sense in the Kenworthy cure, but would also have to alter their entire conception of law. Law, as we know it within any nation, remains an idle set of words unless there is an armed police power to enforce it; an armed international police, authorized to make war against a nation that had violated a law against making war, is too difficult for the skeptics to imagine.

7. *Women.* A romantic recipe for ousting war from

the world is the proposal that women should discountenance it and should refuse to bear children until there is a guarantee that their sons will not be cannon-fodder. It is assumed that women have stronger feelings against war than men have. But there is reason for thinking that among all people, primitive or Christian, young soldiers have found their strongest incentive to war in the admiration of women. The D. A. R., in session at Washington in 1930, applauded Mrs. Morgan when she said, "If we are going to maintain our proud position among the nations of the world, we must have adequate naval resources. . . . We had rather not take a chance that the Millennium is close at hand." All the evidence that women are less warlike than men seems to be balanced by contrary evidence. Doubtless there are girls who would be proud of a lover that did not want to enlist for a war, and there may be men who feel that women would respect them more if they refused to fight; but I have never happened to encounter any such man or woman.

8. *The League of Nations.* I should guess that four out of five of my friends feel sure that the League of Nations is the most promising remedy for war. They admit that it is very weak because it controls no army to enforce its decrees; they admit that its achievements thus far are slight; they admit almost any argument against the League. But the logic of the League is so clear in their minds that they cannot conceive how a rational person can lack faith.

Many astute observers do lack faith. The *New Freeman* spoke editorially on December 10, 1930, of

what was apparent ten years ago, that the whole apparatus of the League of Nations is an arrant fraud, operated by people who have not a shred of honesty or sincerity anywhere in their make-up.

So I am unable to imagine how any man—if he is really actuated by curiosity about a probability—can feel sure that the League of Nations is an anti-war force. Quite possibly it is—that would be my personal opinion. But quite possibly it is just a handy implement which England and France manipulate for their own imperialistic benefit. There are moments when my own proud reason runs away with me and I exclaim, "This spectacle of a passionate conviction that the League is a cure for war, in the face of monumental evidence that it may be no such thing, is a more monstrous revelation of the nature of the human soul than the existence of war is." But such a feeling is mere Big Letter Philosophy. The abstraction, MAN, ought not to rely on his passionate reason or on war. But the actual small-letter biped who does inhabit the globe does use his reason passionately and does continue to prepare for war. There is no sense in getting excited because he is not some other kind of creature.

9. *Democracy.* It is very generally assumed in America and England that war will die out in proportion as democracy spreads its influence. But a powerful school of thinkers are now arguing that democracy is waning—and they do not fear that the new type of government will be warlike. They look forward to the extinction of democracy as well as to the extinction of war.

President Hoover believes that the mass of men must be led if we are to achieve any social progress:

> The mass of people is never constructive, and often is destructive. . . . The crowd only feels; it has no mind of its own which can plan. The crowd is credulous. It consumes, it hates, and it dreams, but it never builds.

Hence, if Mr. Hoover is correct, a democracy can extricate

itself from war only if it follows the leadership of a few gifted men—that is, only by ceasing to be democratic.

10. *Education.* Recent literature is flooded with all manner of alluring educational remedies for war. A typical example is the reasoning of C. Delisle Burns. He recognizes fully how bad the present condition of men's minds is:

> The atmosphere of intercourse between governments is poisoned by suspicion. . . . The obstacles to decreasing the preparation for war are customary attitudes which are still dominant. . . . The majority of citizens in all states are primitive. . . . The common man cannot see what is under his nose and is living in a false mythology of national rivalries.

Now gaze upon the transformation of these citizens, which is to be wrought by a new way of teaching history in the schools.

> From the black magic of the traditional history he can be delivered only by the white magic of a new history. A new teaching of history would give rise to a more enlightened patriotism. Children of each nation would learn to regard other nations as groups of men like themselves, pursuing the same ends of peace and happier life. Such an understanding releases abilities hitherto unused. Fear and suspicion of what is foreign or unusual are cured.

You notice that Mr. Burns's white magic slips from the prophecy of "would give" to the statement of present fact, "releases abilities and are cured." You notice that this magic of education is the *only* way to save men from war. That is the perpetual marvel in reading about these drugs for the disease of war: each author has the *only* one that will restore health.

Every authority on education as a cure for war grants that conditions are about as bad as ever, but is confident of his cure. William F. Russell, Dean of Teachers College, told a Radcliffe conference two years ago:

There is as much hatred and desire for war in the hearts of men today as there was before the World War. This hatred does not exist among children. A program of international understanding through the schools must rest largely on the elementary school. From the ideas that emerge from people who graduate from it our country is dominated.

This is good news indeed. War is as good as dead if the news is true. I wonder whether Mr. Russell would bet a year's salary that his educational panacea will be thought of more highly by publicists in 1941 than it is now. The proportion of qualified reasoners about war who support his view is not more than one in twenty. Mr. Russell could probably get big odds.

11. *Changing our moral nature.* If the Rev. John Haynes Holmes were a betting man, and if he seriously meant what he said in a sermon preached on November 25, 1928, he ought to be willing to lay odds of twenty to one against Mr. Russell. For he said not a word about waiting till the children grow up or about mere "understanding" such as could be imparted in schools. He regards the Russell scheme as a useless salve, for he sees that the right medicine must penetrate the whole mentality of our age:

We must get rid of war, or war will get rid of us. We are trying to do this through the League of Nations, the World Court, and now through the Briand-Kellogg treaty. Yet the world looks the same as ever. He is a brave man who would dare to prophesy that another war was impossible in the next ten years. . . . On this matter

of peace there is no health in us. Hence the need of an immense revolution within ourselves. *We must remake our minds* into confidence and faith before we can remake the world. This is the revolution we need for the reconstruction of society. We can get rid of war if we resolve to do so.

I wonder what odds the psychologists of Dean Russell's faculty would give on the possibility of that immense revolution within ourselves which we must make within our selves.

Mr. Holmes has not the least respect for all the previous ten cures that other profound thinkers have staked their reputations upon. Or have they staked their reputations? I am almost driven to suppose that these orators and authors are staking nothing, that they do not mean to be taken seriously, and that their only purpose is to gain prestige by broadcasting winged words. If they are honestly offering their *only* cures as devices that are guaranteed by reason, if they are really prepared to uphold their views as the only ones tenable in sound thought, then arithmetic shows that all but one of the groups of reasoners must be completely mistaken. The chances against each Holmes and Burns and Russell are intolerably large. The hardihood necessary to accept such odds is far greater than any recklessness ever shown by a patron of Monte Carlo. To a scientist or to any ordinary citizen the odds are prohibitive. Common thinkers cannot conceive what goes on in the mind of a Holmes who says—in defiance of nine-tenths of the best reasoners—"We must remake our minds."

This prodigious feat of imagining the transformation of human mentality—a feat which is quite beyond the power of all anthropologists and publicists and psychologists and geneticists—can be performed easily by minds of a theological type. Henry W. Elson, the veteran his-

torian, is an example. He begins Chapter XVIII of *Side Lights on American History* by reciting the terrific facts of human nature:

Man is not naturally cruel; but he is selfish and greedy. From his selfishness and from misunderstandings come the wars of the world. To these causes may be added another—a pugnacious instinct.

Now, if the word *instinct* means anything, it means that the desire for war is planted as deep in our make-up as other real instincts, such as the innate impulses for mating or eating or being admired. Mr. Elson would not be able to imagine that any artificial process could curb those deep propensities of our animal nature. But he imagines an alteration of the warlike instinct as easily as if he were talking about curing the fondness for sugar on cereal:

The *only* possible way to preserve civilization is for the ethical, the moral, the religious standards to predominate, to control, to curb, if necessary, as the mind controls the body, all inventions and mechanical contrivances; and one of the first essentials is to decree that human warfare must be no longer.

Can you follow that? This mind of man—so selfish, so greedy, so instinctively pugnacious—is to decree that the mind of man shall not use the instruments of pugnacity.

You might suppose that Mr. Elson's reason had reached its limit. Not at all. One page later it vaults far above this level.

All these efforts of the past proved fruitless. Is there any possible remedy for this horrible business of war? Yes, there is *one* remaining method to prevent war. It is expressed in a single word—*Fraternize.*

It appears that we are to fraternize by means of the League of Nations, the power of which is described fifteen pages later:

> Is there no way to curb and control the war lord? Yes, one way, and *only one*. A great voluntary supernational organization, devoted to the maintenance of peace, can say to the war lord, "Thus far and no farther." The war lord will obey. No nation can disregard that voice. It is the voice of the world.

We see the greedy mind of man decreeing that ethical standards shall curb its greed and submitting its pugnacious instinct to the voice of the world—which must, of course, be uttered by the mass of greedy and pugnacious individuals who form the world.

To ridicule Mr. Elson's treatment of war would be small-minded and vicious. Ridicule is farthest from my purpose. I am exhibiting the extreme difficulty that the ordinary man has when he tries to find out what the elements are behind the common reasonings about remaking human nature. Perhaps some of these thinkers can see where I misinterpret the reasonings. If so, they will be helped; for they will then know how they have failed to make themselves understood. They will realize that before they can appeal to the average sense of logic among mankind they must clarify their parables in two ways: (1) Why should we expect, now, a glorious reformation for which there is no parallel in all the past history of the efforts of the human race to reform itself? (2) How is the warlike mind of man to get inside itself and change itself into an unwarlike mind? The Holmeses and Elsons will merely be throwing bright words into a bonfire until they give concrete answers to those two questions.

A large proportion of the best-accredited students of

war dismiss the "remaking" cure with utter contempt. To them the Holmeses and Elsons are not thinkers, but only word-artists. The great majority of reasoners would judge that in this section of my chapter I am wasting time by exposing sheer emotionalism which few scholars take seriously. But this section deals with what is by far the most common form of reasoning about war among men who address, not specialists, but the public. Remodeling our hearts is much the most common nostrum offered to the general reader. It is the most mystical kind of thinking about war. It is the best exhibit of the strongest passion of reason—to build up heaps of shining words which the majority of other word-builders consider irrational nonsense.

12. *Christianity.* To argue that all religions together, or any religious spirit, could cure war would be to oppose the convictions of nearly all philosophers, psychologists, modern poets and novelists, political scientists, sociologists, and statesmen. In my own reading I have never come upon one hope, expressed by one writer in any of those classes, that religion could remove war from the world. Although there are no statistics, it seems a conservative estimate that ninety per cent. of all reasoners about war have no faith in religion as a remedy. It seems highly probable that two-thirds of the reasoners would consider the following judgment of John Carter a truism:

> Religion offers no peace to the world; it offers, instead, the sword of theocracy, and a brief survey of the world religions of today affords only the dispiriting spectacle of noble aspirations turned to dissension and violence.

Hence I am lost in wonderment if I try to imagine what preachers are about when they proclaim such messages as Dr. H. A. Atkinson broadcast on May 25, 1930:

Wars in the past have been fought either for religion or by the aid of religion. But now the time is come when religion must justify itself by solving the world's greatest problem, the problem of war. Either the eleven living religions of the world can co-operate to put an end to war, or else war will put an end to modern governments.

That form of statement is frequent. It rolls from hundreds of pulpits every Sunday. It is encountered so often in print that we are apt to hear it without noticing its contents. Dwell upon its logic a few moments. First: In all previous history religion has been the servant of war. This is an undisputed fact which is used as a somber background for the display of the shining creative thought that is to come forth shortly. Second: But now the undeviating course of all history *must* be changed. Third: No power except religion can save us from war. Fourth: If religion does not cure war, the human race will plunge quickly down to ruin.

The third step in this formula stifles my brain. When I read it, I see its inescapable pessimism: unless nine-tenths of all the best reasoners are wrong about religion, civilization is doomed. I also see that the preacher is not the least troubled by the pessimism. No—he is proceeding with a gay heart. Even when he says, "If religion does not heal the nations," he is serene and cheerful. For he is thinking only of his pretty mental image: "Religion *will* save." He has no curiosity about the probability of this statement—no more than a bee has when it smells nectar. The preacher makes straight for the treasure of the assumption about the power of religion. He feasts upon it. He feeds the congregation with it. They like the taste of it. And there you are.

The truth must be that congregations are not interested in the logic of such a sermon, that the man who speaks does not feel responsible for straight reasoning.

His business is to rouse emotion, and his device is not logical, but merely an emotional arrangement of discourse that simulates logic. If that is the way of it, my brain can be resuscitated, and I can go about my affairs with an easy heart.

But what am I to do when I hear Mr. Fosdick argue, not for religion in general, but for the Christian religion; and not with an emotional form, but with severe reasoning? He is a well-read man and knows what a vast majority of the world's thinkers are opposed to him. He is a skilful reasoner, fully aware of all the responsibility that he assumes when, as a renowned thinker, he asserts: "Without the conscience of Christians all designs to end war will fail." In the last two chapters of *The Modern Use of the Bible* he has argued most movingly that "Western civilization may go to pieces under us," that "Christianity must fight a materialism which conceives that war is the basic standard of nature," and that Christianity "creates a climate" where bloodthirstiness and war will not grow. The argument of these chapters makes no reference to any hope of a remedy for war except the gospel as Christ preached it. Fosdick stands opposed to the great array of reasoners as confidently and incuriously as if he had never heard of them. By the might of his reason he can overthrow all the reasonings of a host of the best intellects of earth. He does not even mention the reasonings. They are idle breath to him. He blows upon them with his breath, and they are dispelled.

No comment on this case could add anything to its interest. As Webster said at Bunker Hill: "The subject overwhelms me, and I turn from it."

Probably Mr. Fosdick is doing his bit to rid the world of war; for he appeals to emotion. Scrupulous logic and a respect for facts make no impression on emotions.

Probably Mr. Holmes does more to cure war by an oration on "remaking ourselves" than Davie and Scott can do with all their grubby facts. Probably the way to excite men against the horrible disgrace of war is to give them a steady diet of thobbery. They have always relished it and have never had an appetite for facts.

When a man has learned to beware of thobbery, he is not less hopeful about the ability of the human race to get rid of war. He simply realizes that hope need not depend on a logical program neatly thought out in advance. He can see that mankind has sometimes escaped from harmful customs by methods *which reason never devised.* So perhaps we shall some day find that we have squirmed out of war in a manner which no one now foresees.

We may amuse ourselves for a paragraph by imagining a way in which men might escape from slaughtering themselves wholesale. The British Empire and the United States may be growing conscious that war is suicide. They are perhaps being forced, even against their desires or plans, into a common purpose of reducing the amount of warfare in the world. They are perhaps being forced—against their strongest instincts of intolerance and pugnacity—to refrain from war between themselves. They may be so powerful, if they can keep from fighting, that France will be safe only if she allies herself with this world-wide peace-group. Germany might realize that the only way of safety for her is not to antagonize such a massive and far-reaching combination of powers. Italy could not hope to oppose such a coalition. Russia would never be able, we can imagine, to succeed in attacking the mass of resources clustered around the English-speaking peoples. War might have to die, suffocated by the stern (and utterly selfish) resolution of the English-speaking peoples not to tolerate wars that would involve them in

destruction. We might even learn how to speed up the suffocation slightly by conscious efforts.

To paint such a bright picture in the mind is not thobbery, but legitimate fancy. Thobbery begins only when we forget that the picture is not reality. If a man mistakes his pictorial work for a representation of *something outside his brain,* he joins the host of the deluded worshipers of reason. If he preaches about his picture and incites men to believe that it corresponds to a fact in nature, he is the typical logic-monger who betrays his fellows with delusion, with thobbery. If anyone can learn to distinguish between a mental picture and a thing in the world, he has a happier and more useful mind.

THE END

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