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*In Quest of Morals*



# *In Quest of Morals*

SCANDINAVIAN PRIZE ESSAY, 1936

*By Henry Lanz*

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*To*

*Henry Waldgrave Stuart*

*my senior friend and unsuspecting teacher*



## Preface



THIS PREFACE is really an epilogue. It is necessitated by aesthetical rather than logical considerations. It is an attempt to prepare the unsuspecting reader for the somewhat unusual, and to some people perhaps objectionable, tone and form of the book. For the present essay, even though conceived in an earnest vein, is executed in a style which is out of season with the “educational” seriousness of our time. It does not presume either to instruct or to edify anybody. It does not solve any problems. And yet it offers, I think, a little more than mere opinions. Would it be too conceited to say that the book was originally designed to throw light upon any and all opinions that may eventually rise on our troubled cultural horizon?

For the last hundred years or more, philosophy, very much like religion, has lost its vital contact with real life and has degenerated into a purely academic discipline expanding—rather uselessly—in two opposite directions. On the one hand, it endeavors to support and even to “save” religion by dwelling, in a rather dull manner, upon what has long ago ceased to play any real part in the life of the average educated man of today—the old-fashioned sentimentalities of God, love, and eternity. It proceeds to perform a function which, in the opinion of the average man, is much more effectively performed by the preacher in the church, who is professionally trained to deal with edifying abstractions.

On the other hand, ever since Kant, philosophy is diligently engaged in digging foundations and analyzing the methods used by scientists—a presumably valuable service, which ungrateful science nevertheless prefers to ignore. By constant as-

sociation and preoccupation with science, and dazzled by the success of science, philosophy has started upon a new career of imitating science, striving to equal and even to excel it in clarity, to dogmatize the empirical and positivistic creed. The results have been more than deplorable; they have proved to be positively disastrous and suicidal. Emulating science, our modern logicians have succeeded in developing a "symbolic" method by which all significant problems of philosophy have been eliminated as "meaningless," all significant ideas have been reduced to one familiar triviality or another, and every vestige of "truth" has been carefully and triumphantly removed from the experience of knowledge—which itself, with a remarkable expenditure of behavioristic subtlety, has been transferred to the level of gesticulation, a mere "aptness of the body." The whole domain of science, and especially mathematics, is conceived as a veritable paradise for mute gesticulation. For has mathematics not been defined by one of our leading men in philosophy as "the subject in which we never know what we are talking about, nor whether what we are saying is true"?—a great definition (even though slightly embarrassing for the mathematician), and perfectly correct, provided that one takes it with a proper sense of humor. But some philosophers (and "some" is here a cowardly eulogistic synonym for "many") take the characterization quite literally and—what is worse—proceed to apply it to their own field. They create a new and difficult language, in which, however, they have nothing to say, because all the material content of the hateful "truth" has been conscientiously removed from their anemic words. They design, and keep improving, a logical syntax in which they express such interesting ideas as that "pirots carulize elatically." You don't know what it means? Why, the material content is not important! But you know, of course, that "pirots" is a noun, probably masculine, and most certainly plural; "carulize" is obviously a verb; and "elatically," likewise evidently, is specifically designed

to represent an adverb. You begin to wonder, why not say simply: "x's y-ize z-ly"? But that is not spectacular enough, not sufficiently absurd to convey the profundity of their discovery that there are nouns, and verbs, and adverbs. After all, our time is not an age of philosophy. It is the age of propaganda, of advertisement. And "pirots carulize elatically" is a spectacular piece of intellectual commodity that students may be compelled to buy.

The gist of the matter is that if you wish to attain perfect clarity in your propositions you must confine your statements to formal grounds—a fact that was first discovered by mathematicians and later was generalized by the so-called mathematical philosophers. If you say, for instance, that "two points determine a straight line" and wish upon it as an axiom to construct a system of geometry, you are up against insuperable difficulties—if you mean by it what the ordinary person means by it, namely, that two *points* determine a straight *line*. If you wish logical clarity, you will have to define what you mean by "point." And "point" is an awful nuisance. It certainly cannot satisfactorily be defined as a little black mark that you make on paper. Is it infinitely small? But, then, what is "infinitely"? You see, there is no end of questions and question marks, if you wish to speak of the real, or even imaginary "points," "lines," and "surfaces." But the desired clarity may seemingly be restored the moment you renounce the "material content" and try to persuade yourself that geometry consists of "propositional functions"—those headless horsemen of the valiant "symbolic" cavalry. That is precisely the reason why it really pays, at least for a while, to ignore "what you are talking about" and "whether what you are saying is true or not." You are paying the price for clarity. The result is as clear as blank inanity.

In their pursuit of mathematical rigor in philosophy some of these logical purists have recently attempted to reduce their credo to a condensed form of seven elementary propositions,

presumably simple, clear, and perfectly transparent. They claim to have at last found the "conditions which would have to be fulfilled by a logically perfect language." It may be interesting to note in passing the net outcome of that strenuous exercise in brevity. The seventh commandment of that abbreviated code tautologically warns us not to speak about what cannot be expressed in words: "wovon man nicht sprechen kann, darüber muss man schweigen." That is, perhaps, the most effective ending that I know in the whole history of literature, a really significant statement which is profound and true in the proportion in which it is unclear and does *not* follow from its premises.

Such is the double abyss into which modern philosophy has fallen. To extricate it from this comfortable but utterly inept position we must at least make an effort to return to the "material content of truth," to objectivity and life. That does not mean that we have to speak of war, and communism, and the labor movement. Some of our most impractical abstractions are very vital, and definitely a part of our life, provided that we recover our capacity to speak about them. Why should philosophy strive to help science to clarify its assumptions, or to assist religion in saving our souls, the very existence of which has become problematical? We have had enough of that subservient humility. Why not reverse the issue and begin to exploit both science and religion for our own peculiar purposes? Instead of offering uninvited advice to the scientist as to how to handle his assumptions and how to make broad, but usually premature, generalizations concerning the ultimate destinies of the world, why not frankly utilize science as an inexhaustible source of reference and suggestion?

That is the spirit and the form in which the present book is conceived. The impression may be produced, on account of the numerous scientific and mathematical references used in the text, that the author endeavors to apply mathematics to mor-

als—that he makes an absurd and pretentious attempt to solve ethical problems with the methods of analytical geometry and differential calculus. The charge was actually made against the book by some Swedish critics. To prevent needless repetition of criticism the author wishes briefly to dispose of this possible misunderstanding in advance.

Anyone who reads the book with the slightest degree of philosophical understanding will see at once that the author has no intention of imitating physical science in moral philosophy. Quite on the contrary, he is so bold as to believe that his book has provided a definite and ultimate reason why philosophy can never be constructed *modo geometrico* and why all the heroic efforts to imitate mathematical clarity in philosophy are doomed to failure. Mathematicians and scientists should not really flatter themselves with the notion that the philosopher has nothing more interesting to do than to dig foundations for their (indeed, very remarkable) edifice and to build chimneys on the top of it through which the excessive speculative smoke and hot air may safely escape into nothingness. Science with its highly uncertain and controversial foundations and its vague materialistic metaphysics is one of the philosopher's minor worries. Philosophy has much more important things to do than to dig foundations or to generalize the results obtained by someone else. From science, and from mathematics, the philosopher ought to expect no more than that which a man is said to expect from a woman, namely, inspiration.

The present book does not employ mathematics for the purpose of demonstration. The author does not wish to *prove* anything by his "complicated mathematical apparatus." *He does not argue from analogy.* For illustration is not analogy. It does not prove, it only *helps one to see*, the truth. This book does not presume to prove anything; it only prepares the ground for future proving. Let the reader himself pay the conventional tribute to the rules of dialectical tragedy that we eulogistically

call "solutions." The author is convinced that in philosophy "solution" is really a misnomer; it is an index of a logical catastrophe. For it is precisely our solutions of today which the next generation will consider it their duty to reverse. That does not mean, however, that philosophy has nothing permanent to build. You see, God has wisely and generously granted to all philosophical ideas a semblance of immortality by preserving them as problems and by keeping the sparkle of doubt everlastingly burning in the philosopher's heart. But philosophers, it seems, are at times wantonly determined to disregard God's commands. They seem to be very eager to extinguish the sparkle and to destroy the immortality of ideas by providing them with proofs and murdering them with solutions. They do not seem to realize that proving, after all, is an artificial affair. Nature—human nature included—is not concerned with proofs. It operates without proving the necessity of its operations. Hence proof has no objective significance. It does not belong to objectivity. It belongs essentially to mathematics, because the mathematician deals, not with objectivity, but with his own definitions. The physicist can prove in his field much less than the mathematician can in his, because physics is nearer to reality. The philosopher cannot prove anything, because he is in the midst of it. His very object is reality *as such*—Being, ontology. But if, forgetting and betraying objective reality, he proceeds to compete with mathematics in clarity of demonstration and applies his scientifically purged mind to the invention of a language in which all kinds of clear trivialities can be uttered enigmatically in a style that suggests a cross between Aristotle and Gertrude Stein, he will be bound to end with "pirots carulizing elatically."

Let me add a few words regarding the history of this book. Early in 1936 Professor H. C. Brown, of Stanford University, called my attention to the international competition announced

by the Swedish publishing house, Natur och Kultur, in collaboration with other Scandinavian publishers, with a prize offered for the best book dealing with the subject: "Can an objective moral standard be set up in the present age? If so, on what can it be based?" Upon Professor Brown's suggestion I wrote and anonymously submitted for that competition a manuscript which I entitled "The Problem of Ethical Objectivity." Subsequently it was chosen as the prize winner by the committee of judges consisting of three eminent Scandinavian scholars—Professors John Landquist (Sweden), Hans Ruin (Finland), and A. H. Winsnes (Norway). The manuscript was thereupon translated into Swedish and Norwegian and in 1937 was published in those two languages with the respective titles: *Den etiska objektiviteten* (Swedish) and *Relativitetsmoral* (Norwegian).

The work now appears for the first time in its original English version. Here the first two sections of the book remain almost unaltered, but the last section, which suffered most from the haste of its initial composition and from my lack of opportunity to check it in proof, appears in a somewhat modified form.

H. L.

STANFORD UNIVERSITY, CALIFORNIA

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## I. *Introduction*

"I am sorry I have pretended to be a philosopher; for I find your questions very perplexing, and am in danger, if my answer be too rigid and severe, of passing for a pedant and scholastic; if it be too easy and free, of being taken for a preacher of vice and immorality. However, to satisfy you, I shall deliver my opinion upon the matter, and shall only desire you to esteem it of as little consequence as I do myself. By that means you will neither think it worthy of your ridicule nor your anger."

DAVID HUME



IN ATTEMPTING to deal with the questions, "Can an objective moral standard be set up for the present age? If so, on what can it be based?" it would be presumptuous, I think, to seek an effective solution in the direction of establishing an ultimate rule, or set of rules, designed once and for all to guide our conduct and to lead us out of the present-day tangle of conflicts into the straight path of universal harmony and mutual agreement. The time of the Ten Commandments has passed. We can no longer be persuaded to believe in the magic efficacy of an ethical superstandard under which the belligerent fascist and the international communist, the young Catholic priest and the old sophisticated skeptic from Cambridge, can embrace one another and walk peacefully together toward a common goal. At least I, for my part, would not presume to offer such a solution.

But this initial reluctance to accept the challenge at its face value does not necessarily imply that objective standards are impossible or that our time is particularly unfit for such standards. We have a long way to go before the question can be answered, affirmatively or negatively, before it can be even in-

telligently asked. For the question is initially stated—as it could not be otherwise—in undefined terms. We have to define, or at least to discuss at length, what is meant by “objectivity,” and “standard,” and what are the characteristic features of “our time,” before venturing to offer even a suggestion as to how to proceed in seeking a solution. But, granted that it is possible to set up objective standards of morality for the present age, it is scarcely reasonable to expect that universal harmony can be established in such a demurely academic manner as by writing a book. Fortunately or unfortunately, men have to pay dearly for every minutest advance in the path of mutual agreement. Many a long and desperate battle will be fought around our present-day standards before a reasonable amount of harmony on earth will be reached, if ever. Perhaps precisely because every standard bears an element of objectivity in it, it is difficult to reach a satisfactory conclusion as to how to reconcile the innumerable contradictions of standards. It is easy to refute a doctrine; but it is hardly possible to dispose of an objective fact just by refuting it.

One thing stands out clearly from the outset: In the present age we seem to be farther removed from the ideal of universal harmony than ever before. Far from showing the dreaded symptoms of decline and senility, our time suffers rather from the vices of immaturity, youthful vigor, and youthful chaos. Perhaps we already have sufficiently “declined” and are now rising again? I am inclined to think that we are witnessing the birth of a new civilization rather than the death of an old one. It has been recently suggested, on good logic and as much evidence as could be expected, considering the nature of the argument, that we are commencing a new millennium, that we stand at the beginning of a new Middle Ages. Look around and see. Where do you scent decay? Everywhere are beginnings of new things, arrogant, intolerant, youthful things; things growing up and unceremoniously thrusting each other

aside; inconsiderate and thoughtless younglings, ignorant of their descent, feeling no connection with the past, and boastfully repudiating all traditions. The situation resembles primordial chaos more than the end of the world. The fact that we have "statistics," that our mathematics displays the tendency to "prove" rather than to "discover," even if it is true, does not mean much. The Middle Ages also had their scholastic logic, which was specifically designed to prove and not to discover. Ought that to be regarded as a proof that their culture was on the verge of collapse?

It has also been argued that skepticism is a sign of decline. We have skeptics among us, it is true; but do they have large following? Skepticism is certainly not the characteristic feature of our age. We suffer from too much faith, not from a lack of it. Every one of us has his own little creed; every one has moments of intense and militant irritation against those who are differently minded. We seem to be peculiarly incapable of understanding one another, because each deems himself the sole possessor of truth and looks upon his unenlightened neighbors as a danger to civilization. Because we have science we think we have wisdom, and are strongly inclined to regard our material success as a proof of our spiritual superiority. The accusation that our age is irreligious is absurd. Even our skeptics are great believers, and have their own sneaking certainties at the bottom of their most cynical doubts. Perhaps the most grievous affliction of our time lies in our capacity to believe, in the facility with which various, often incongruous articles of faith are simultaneously taken for granted as axioms and followed faithfully and loyally, without any respect or even regard for one another.

Beliefs and ideals are dangerous realities. They are not merely the most lofty but also the most arrogant and cruel of all creatures. They remain harmless as long as they are allowed to ferment in the minds of their original inventors or as long

as they stay in books. But when they go into the street, they become ruthless and often inhuman. Every ideal carries an element of violence. At the bottom of J. J. Rousseau's *Du contrat social* one may vaguely discern the image of Robespierre rising from the fumes of his mentor's social and political sentimentalities. Saint Paul and Torquemada, however incongruous as types of mentality, are spiritually related. In conditions of real life ideals are easily, almost inevitably, deranged. And when off the track they go mad and become violent. In German there is a word which suggests an amazing equation between ideal and insanity: *Wahn*—a sort of a hybrid of imagination and madness. And *Wahn*, according to Schiller, is the most terrible thing on earth:

Verderblich ist des Tigers Zahn;  
Jedoch der schrecklichste der Schrecken  
Das ist der Mensch in seinem Wahn.

Or, to quote Spinoza, nothing is more hostile to a *rational* being than another *rational* being. For we are very skillful in covering our most gigantic blunders with rational phrases. This we call education.

Our time, one of great unrest and searching uneasiness, seems to be particularly susceptible to "ideals." Having lost our balance, and feeling that we are falling, we are ready to grasp in haste anything that may offer a hold. That makes us eager to believe, eager to serve a standard. We live in the midst of a great battle of standards. In this battle philosophy has a double function to perform. On the one hand, philosophy is largely responsible for the existence of hostilities. It feeds dissensions and supports partisanship. It is instrumental in producing innumerable creeds. For, after all, ideals, even though they have social and economic backgrounds, are offsprings of reflective thought. By rationalizing various attitudes of life, philosophy gives them the sanction of justice and the appear-

ance of truth. In times like ours philosophy only adds fuel to the flames. For the ideals, codes, and creeds arm themselves against one another with logical arguments based upon mutual intolerance and deliberate exclusion of all other points of view. In the great battle of standards philosophy is called upon to support and to rationalize "local" attitudes, and in performing this function it foments dissension and brings about disharmony. For people are often blinded, almost possessed, by their creeds. In the effort to visualize an ideal they disregard the intricate mechanism by which ideals are measured and set up, just as in physics they forget their "measuring rods" and the conditions under which the measurement has been performed; and hence "ideal" appears as an absolute entity, waving its flag and shouting for victory.

I do not wish to exaggerate the force of these contentions. I am not suggesting that philosophy is always and inherently evil. I am not insinuating that to save the world it would be a good thing for the philosophers to take a ten-year vacation—which was recently and in all seriousness recommended by certain eminent religious authorities for the scientists and the inventors as a remedy against the accumulating ills of society. And I do not believe that the new Tower of Babel which philosophers indeed are eagerly and professionally helping to erect has to be accepted with hopeless resignation. On the contrary—if I may bluntly venture to state my personal and perhaps somewhat naïvely cherished faith—I for my own part expect salvation to come from more rather than less philosophy. For, in the first place, the diversity of creeds is an inevitable, and wholly legitimate, response to the diversity of social and economic conditions which philosophy only helps to rationalize; and it is by no means in the nature of philosophy, but only—perhaps—in the nature of human character, that those rationalizations are erroneously held absolute. It would be far from actual truth to say that all or even the majority of philosophical

schools and individual philosophers fall prey to the error of absolutism. Not merely as a matter of pious desire but actually as a matter of fact, philosophy performs, or at least strives to perform, another function—I am tempted to say mission—which is far removed from absolutistic aspirations. It often serves, or at least offers to serve, as an impartial arbitration power whose suggestions might well be considered, and sometimes *are* actually considered, by the belligerent parties as a fair basis for at least a temporary armistice. For a good deal of discord and hostility can be traced to illegitimate sublimation of “local conditions” to the status of absolute truth. The realization, therefore, of relativity of values and standards with regard to “local conditions,” in the social sciences as well as in physics, might be the first step toward genuine objectivity. The search for solid and firm objectivity amidst the everlasting change of local conditions is also a function of philosophy.

But why bother about objectivity? Can we not enjoy life, and even be reasonably honest, on a purely subjective basis? Do we need objectivity in order to be happy, to be moral? Can we not be happy and moral in a dream? If it is only the quality of the will which determines morality, nothing will be changed in that quality in case decisions are taking place only in a dream or are an illusion in a higher metaphysical sense. In other words, is objectivity in itself a value?

To prepare the ground for answering this question allow me to use a fantastic illustration. Fancy the old tale about Mephistopheles to come true. Imagine yourself to be visited by an old-fashioned Devil appareled in flame and sulphur smoke and offering you what, I presume, would be for him a rather unconventional bargain: He will undertake to arrange for you an intensely interesting life career which you yourself will be allowed to design in all its details; if you are a hedonist, he will agree to let you have and to satisfy all your desires; he will make you young, and rich, and attractive; if your hedonism

is simple enough, he may place you in the *Korpsstudenten-Paradies* by supplying you with the proper amount of *Wein, Weib, und Gesang*; if your hedonism is of a more refined nature, and you require some spiritual thrills in order to feel contented, he may arrange for you something he had arranged for Dr. Faust at the end of the second part of the tragedy, a sort of gigantic real estate project designed to make everybody free and happy; if you are a philosopher, you will be allowed to know as much of the secrets of the universe as a human being is at all capable of knowing—in a word, you will be made the greatest and happiest man on earth. And all this extraordinary luck will befall you not for a day or two, but for any reasonable length of time—for twenty, even for fifty years, if you wish, in normal psychological time reckoning. Moreover, you will be left in full possession of your senses, and duly confronted with all the realistic details of everyday life during the whole length of the experiment. But all this will be granted to you on one condition only: that *it will all happen in a dream*. During the grand spectacle you will *not* be aware that it is only a spectacle; you will be allowed to enjoy it all on a strictly realistic basis, and your enjoyment will not be contaminated by the consciousness of its futility. But in the beginning of the transaction, at the time, say, when the pact is signed, you must be fully aware of the conditions imposed upon you, and you must make the choice in full presence of mind—to live your own real life, however modest and uneventful, or to have a grand illusion. Which would you choose?

I think it would be futile to make any sweeping statements as to which the majority of people would probably choose. Such hypothetical generalizations are useless. Frankly, I do not know myself what I would choose under the circumstances. It would depend, I suppose, upon the number and intensity of temptations the Devil would be able to hold before my eyes. But, to say the least, practically all of us would hesitate. And

even a moment's hesitation in the matter is, perhaps, of greater importance than the actual choice. For, the choice, even if it is decided in favor of the illusion, will be determined by innumerable attractions, whereas the hesitation is an expression of one single preference, the voice of one value only—objectivity. Illusion, however tempting and convincing, does not ultimately satisfy us. Even if we make the decision in favor of the illusion, we shall feel that it is not “right,” that we only yield to temptation, and that we make a worthless choice. Our mere hesitation in the matter proves that we regard objectivity as a value, as intrinsically superior to illusion.

We feel that objectivity, or what we commonly call real existence, is in itself a value. This feeling should not be interpreted as a manifestation of sweet unselfishness on our part or as an expression of Christian willingness to bear pain if so ordered by God. It is our inheritance from Christianity, but not in the direction of sentimental altruism and asceticism. In a sense it is supremely selfish and even egotistic; this feeling is an expression of our unwillingness to part with our own ego, its achievements and efforts. Very likely only people who are idle and accustomed to live in luxury unearned would be prone to decide in favor of illusion. It is not their individual but their class preference. A person who feels responsible for what he is, who knows that whatever he has is a result of his own work and effort, a person who has had to struggle for his material and spiritual possessions, who loves and respects himself for what he has done, a person who knows the value of what he is and what he has—such a person would not readily part with his own reality. This is “private” property in a metaphysical sense—in a sense which remains invariant from the capitalistic as well as the socialistic point of view. In this sense, by accepting illusion I should act as a Vandal with regard to myself, destroying my own property in the best sense of the word and annulling my own efforts.

But if by declining illusion the individual reveals love and respect for himself and his efforts, how much more important are the communal efforts of the society which have helped him to become what he is. His skill in doing his work, whatever it may be, from the manual work of a carpenter to the abstract operations of a pure mathematician; the ways and forms by which he makes himself acceptable and agreeable in social circles; his capacity to enjoy art and life—all this is an outcome of a continuous social effort. The individual only fills the place which is prepared for him by society. The financial success of a Morgan, the discoveries of Einstein and Millikan, the poetic reforms of Jules Romain and the music of Sibelius, even the charms of a fantastic Don Juan and the cruelties of a Borgias, are forms, "places," or destinies for the respective individuals to fill. And in the preparation of all those innumerable destinies the ages and ages of social evolution have taken an active part. By choosing illusion the individual would annul all those efforts, boldly and blindly announcing that his own pleasures are much more important than he himself is.

And how much more important still are the cosmic efforts and convulsions of the universe as a whole in producing life, man, and society. It has been said that our history begins in heaven, that is, that there is a continuous stream of evolution that leads from the burning star to the history and tragedy of man. What I am is not merely my own creation; the whole universe participated in producing this strange thing that I call myself. By choosing illusion I declare that the entire cosmic effort that was necessary to give me my life and my destiny is futile and deserves no consideration.

This fantastic illustration is not entirely beside the point. The reference to the Devil is, of course, merely a convenient means of presenting the issue in a simple and popularly intelligible form. Now, we can easily eliminate the Devil from the argument. Life itself, without any assistance from the demonic

forces, constantly urges us to choose between wholly illusory satisfactions and painful realities. It is true, perhaps, that we more often choose illusions because they please us more. But that is not the point. The important thing is that in the vast majority of cases we do not inwardly and sincerely approve of our choice and often feel that the other course, that of reality, is more valuable, even though no doubt more painful. Existence is a value, and is commonly appreciated as such. Is not this the reason for the Platonic identification of Being and Good? Being, not the pale conceptual abstraction of empty time, but Being as the concrete mystery of the Divine Creation actually carried out, as a miracle of the universe actually taking place, Being in the sense in which Thomas Aquinas conceived it as the fullness of conditions upon which everything rests, this Being, we think, is good. It is better to be than not to be. And even if we yield to the Devil's temptation and choose illusion instead of reality, we do it shamefacedly and with a sneaking conviction of choosing the wrong thing.

Now, every value presupposes a virtue on our part. Virtue is the subjective companion of value, the form perhaps in which value is manifested in consciousness. If, therefore, objectivity or existence as such, and as a whole, is a value, there must be a subjective equivalent, an impulse corresponding to it. This is our *trust in reality*—perhaps the strangest and the most irrational of all virtues. For reality does not seem to justify it. Reality is mostly indifferent and often cruel to us. But, no matter how many blows we have from life, we obstinately cling to life and we would not easily be persuaded, I think, to exchange our life, however dull and painful, for an illusion, however great and bright. We vaguely feel that reality is taking us somewhere, even though we are almost entirely ignorant as to the direction of its course. We at least know that illusion does not take us anywhere. And we evidently prefer to be moving in some direction than not to be moving at all.

This trust in reality, which is perhaps a vague presentiment of our cosmic duty, does not necessarily imply that we must have absolute confidence in the ultimate victory of the good. Why this annoying begging for absoluteness? Can't we take chances with ultimate reality as we take chances with everything else? We trust, with Plato, that objectivity may in some sense be "good." Must this be absolutely certain to sustain our trust? In other words, is probability entirely inconsistent with morality? Why is it that the scientist who is quite satisfied with approximations and probabilities in his own field, and even insists that nothing else could be reasonably required of him, expects mathematical rigor from the philosopher and, finding none, condemns philosophy as a humbug? Most assuredly, we do not know, absolutely and for certain, whether objectivity *is* to be trusted or not; but we commonly feel that it is. And we have reasons to believe so. The illustration above concerning the Devil does not prove it by any means; but it brings out the feeling of value, I think, quite clearly. Religious people call that feeling "faith." They express it by saying that they have trust in God, in which phrase "God" is merely another word for "reality." According to Thomas Aquinas, "being and goodness are convertible terms." The entire *Summa Theologica* may be interpreted as an attempt to locate and to formulate the invariant behind *esse* and *bonum*. "Every action," says Thomas, "has so much of goodness as it has of being, and so far falls short of goodness, and is called evil accordingly, as it is wanting in any point of the fullness of being that is due to the human action." This is faith—an unconditional trust in reality. It may be interesting to note that precisely at the time when the early fathers of the Church were urging their subterranean congregations to "have trust in God," Marcus Aurelius, who relentlessly persecuted those congregations, made his famous wish that in his actions he might do what the universe designed him to do. The underlying sentiment of devotion and trust was in both

cases the same, or at least very nearly the same thing. Only the words were different. But so profoundly is our moral life contaminated by the ghost of absoluteness, and so eager are we to raise our relative creeds to the level of the ultimate truth, that for centuries those two groups kept on tormenting each other in defense of what practically amounted to the same thing.

The force of these considerations, however, should not be exaggerated. The value of objectivity may forever remain doubtful and problematic. But that does not mean that reasonable arguments either pro or con are entirely excluded from this field of inquiry. I do not feel that I am compelled to embrace fashionable agnosticism merely because my arguments in defense of the "cosmic good" are not absolutely convincing, or even because they are weak. It is a problem for practical philosophy to produce better and stronger arguments, perhaps even facts, in support of the "objective good," and thus to defend its cause against the uncertainties of mere feeling and against the attacks of the skeptics. But in this defense we must be on guard against ourselves. Our desire for ultimate certainty in such matters is so strong that we are altogether too anxious to regard even the minutest increase of knowledge as an expression of ultimate truth. Against this tendency it is, I think, important to bear in mind that our readiness to act sometimes even contrary to our personal interests in order to bring about what we believe to be objectively good is a very strange thing, the mechanism of which is very imperfectly known to us. Good is a mystery, much more of a mystery than is evil. In the celestial perspectives, on a cosmic scale, evil may be difficult to understand, difficult to account for; but down here on earth, in the immediate neighborhood of our daily life, evil is not even a puzzle. Evil deeds are usually quite rational, since they are so easily reducible to impulses whose origin is perfectly transparent. But why on earth I should yield to a *good* impulse which is not in my personal interest and which eventually may even

lead me to destruction—this is a miracle. Good is not merely infinitely more important than evil but also infinitely more difficult to comprehend. Infinitely more—which means that its nature is incommensurable with those familiar psychological realities, however ingenious and subtle, by which we claim to understand the faults of our neighbors. Good is not of the same make. From the “scientific,” psychological point of view it is a miracle, perhaps the greatest miracle on earth. Kant must have fully realized this when he said that there were two things which never ceased to inspire him with awe: the starry heaven above us, and the moral law—the voice of the good—within us. And was this not a mild way of saying: *credo quia absurdum*?

If these considerations are sound, their general effect is seriously to curtail the pretensions of ethical absolutism and apriorism, without, however, necessitating abandonment of objectivity and acceptance of relativism. Moral good, both in its formal and in its material aspects, may be very imperfectly known; and yet in so far as it is known it may be objective. Its very existence and validity is highly problematic; but every problem is a statement of objectivity, and is a problem only in so far as its prospective solution is concerned with reality. Again, ethical solutions may very well be based on probability; but what is probable is believed to be objective precisely to the extent guaranteed by the degree of probability. If a phenomenon is proved to be an illusion, nothing is probable about it; for all its attributes are simply nonexistent. Good even may forever remain a mystery. But mystery is never a subjective phantom, even though it may be a mystery only with respect to a conscious subject. It is a mystery only because, and precisely in so far as, it is assumed to be objective. In other words, a certain degree, and even a very large degree, of uncertainty is not incompatible with objectivity.

The question is: *What is objectivity?* This is our first serious problem in dealing with the question announced as the subject

matter of this book. The concept of objectivity must be so constructed as to guarantee unlimited and flexible relativity without impeding the full force of the objectively organized good in the universe. The "divine plans," so-called, of course should not depend on circumstances. But that does not mean that "circumstances" must be forgotten or disregarded. On the contrary, "divine plans" must fit any circumstances whatsoever, which implies that they must be able to take innumerable forms precisely in accordance with circumstances. The "objective good," if any such thing exists in the world, could not be like a mathematical constant, a monotonous abstraction, immutable and immovable, which would kill life instead of sustaining it. It must rather be conceived as an invariant comparable to the components of a physical vector which describes the direction of physical events. Vaguely anticipating the results of this investigation, I may say this: The controversy between ethical absolutism and ethical relativism is based upon a definite misunderstanding. The contending parties seem to assume that ethical commandments, principles, and values either are subject to evolution, in which case they depend upon social and spiritual conditions and are *therefore* subjective; or they are immutable, "beyond space and time," absolute, in which case they may, and indeed must, be objective. I contend that the alternative is false. An entity—for instance, quantity of motion, or distance between two ends of a rigid rod—may by definition be relative, that is, measurable only with respect to a given set of physical conditions (relative velocity of the co-ordinate system employed); and yet it may, and precisely by virtue of its being relative it *must*, contain an objective factor which renders it uniquely determined *with regard to that system*. Without any such factor our entity would not be uniquely determined *even with regard to the given set of conditions*; it would be subject to chaotic and wholly unpredictable variations. But our physical and (as I hope to show in the sequel) our ethical phenomena

do not behave in so anarchistic a manner. We not merely find them determined within a given set of conditions, but we often find it possible to predict how they will behave under different sets of conditions, that is, when they are transformed to a different frame of reference. We know, for example, that a rigid rod of length  $\iota$  within a stationary system will, with a high degree of approximation, be less than  $\iota$  if referred to a system of co-ordinates moving with respect to the original system. This latter value is not arbitrarily defined, but is uniquely determined by Lorentz equations of transformation. To be sure, it depends upon observation; but not in the sense of being created by the mind of the observer. It depends only upon the circumstances under which observation takes place and which constitute a purely objective situation. Hence, being strictly relative, our length is at the same time rigorously objective. "I" as observer have nothing to say about it: the intrinsic nature of the phenomenon *plus* the conditions under which it is observed determine the numerical (eventually, the ethical) value of the phenomenon. Thus the alternative of "either relative or objective" is shown to be wrong: there are entities—and modern physics supplies a striking illustration of them—which are strictly relative and yet inherently objective.

Reference to *l'évolution des valeurs* can only by a gross error be taken as supporting subjective relativism. The relativist, I take it, is more than anyone else convinced that evolution is an objective process. Why, then, should a value only because it is subject to evolution be regarded as a subjective phenomenon, as a mere *als ob*, perhaps, of reflective mind? Precisely the reverse, I think, ought to be concluded from the evidence so laboriously collected by the evolutionists. If a value emerges from the evolutionary process as a new form of appreciation; if an old virtue falls into disrepute and ultimately degenerates into vice; or if, with the growing complexity of social and economic life, the same thing, for instance, an article of clothing,

originally designed for warmth and concealment, begins to serve other ends, such as adornment and social prestige (a phenomenon which is sometimes referred to as "polytelism")—is this not simply additional evidence in favor of objectivity? Is it not true, or is it not at least taken to be true by those even who argue in defense of axiological evolution, that to "evolve" implies to "be real"? If values, therefore, are subject to evolution, they must in some sense be real and objective.

Moreover, evolution is commonly assumed to be a "change," not an absolute "creation." In other words, if a thing is asserted to have evolved, the assertion implies that in some form it has existed before, that it is a continuation of some previous existence, and that in its emerging appearance it is but a stage in a process the roots of which are hidden deep in objective reality. Every new emerging species, even a mere variety, presupposes the genus—not as a mere abstraction, but as a virile pattern actively at work in every individual, the father of forms (pattern, from *pater*). That is the invariant which we seek—not an immutable constant, but the source and the matrix (matrix, from *mater*) for variation—a stubborn residue which cannot be removed by any amount of idealistic ingenuity. It remains inherently objective.

A similar residue, I think, can be found in our actions, tendencies, aims, and values, in all that which we call practical or ethical. Here, too, as a piece of simple description, we are bound to admit that conditions under which an action takes place or a value is appraised have a modifying effect upon the character of the action and the definition of the value. For under different conditions they *are* different things. The absolutist need not be alarmed. The element of objectivity which he is so anxious to save, and which in his anxiety he grossly misrepresents, can be well retained under the conditions of strict relativity. For, just as in physics a quantity of motion is not less determined because it is relative, so in ethics a value is not less

valuable because it can be defined only with respect to a certain set of conditions. Under those conditions it is just as valuable and just as objective as it would be in the capacity of an absolute entity. Moreover, even though it is true that under different circumstances "the same" value acquires a different meaning, nevertheless this new meaning is not a matter of arbitrary definition or of individual caprice, but obtains from the original one by a process of transformation which is beyond the individual's control. The fundamental thesis of axiological absolutism holds true under relativity: mind does not invent or create values; each value is just *found* by the conscious individual to be what it is—under the circumstances. In going over from one set of conditions to another the individual is brought face to face with a number of accomplished axiological facts which he has to accept (sometimes quite reluctantly) and which he is powerless to change. Hence by admitting relativity the absolutist is not asked to embrace relativism. His values and disvalues, his standards and prohibitive commandments, do not thereby become as inconstant and unsettled as human character, nor are they placed by relativity at the mercy of the individual's fancy. Ethical principles will remain as resolute as ever. Even more; for relativity will change nothing in their status of objective reality, *except that it may eventually provide a firm basis for holding them objective.*

It is a matter of fundamental methodological importance to realize that in its search for objectivity philosophy must proceed to carry out its task not *in defiance* of relativity, as it has often done before, but precisely *on relativity's own ground*. It must follow and take advantage of the methodological experience of modern physics. The physicist no longer considers relativity as a symbol of hopeless dependence upon the subjective point of view. On the contrary, for him the logic of relativity provides a method of gaining an insight into the intrinsic structure of physical events.

In recent years one of the foremost champions of the doctrine of relativity has made a claim, unusual for classical science, that relativity physics provides machinery for studying the intrinsic properties of events, properties which are independent of any particular measuring code or point of view of the individual observer and which somehow bring to our view a world-condition which is real in itself.

I am aware, of course, that for the physicist the word "intrinsic" signifies something quite different from what philosophers are in the habit of calling "inner." In fact, the term is borrowed from mathematics, not from philosophy. In differential geometry it is customary to apply the term "intrinsic" to such equations as are independent from the co-ordinate system employed and depend only upon the law of change of distances between various points of the curve or surface analyzed. Mr. Eddington warns us that in using such expressions as "intrinsic" or "world-condition" he wishes to be as non-committal as possible. And yet he must concede that in some sense the term "intrinsic" implies reference to something characteristic of the events themselves and in this sense represents an approach, and the only promising approach, to the real nature of the physical world as it is at all accessible to science.

In general, therefore, it seems possible to say, with very small fear of devastating criticism on the part of the scientist, that relativity and relativism are two entirely different, if indeed not opposite, doctrines. Philosophical relativism contends that truth and value are both relative, that is, varying with the observer, and not on their own account; in this sense they are subjective, not merely changing with time and circumstances but depending essentially upon the subjective point of view.

This has nothing in common with the theory of relativity or its logic. For, as a matter of fact, relativity is in a certain sense precisely the reverse of this fashionable truism. Relativity is defined as a search for invariants, i.e., for relations which re-

main unaltered under any transformation of co-ordinates and are thus independent of any subjective frame of reference. In terms of philosophical relativism the physics of relativity ought to be regarded as far more disgracefully "absolute" in its very intent than any assertion of the classical theory has ever claimed to be. In this sense the theory of relativity is fundamentally realistic and not in the least subjective or relativistic. It endeavors to make the world accessible to us as it is and not merely as it appears to be to an individual or even to a collective observer. "Einstein's theory of relativity," says Weyl, "has advanced our ideas of the structure of the cosmos a step further. It is as if a wall which separated us from Truth has collapsed. Wider expanses and greater depths are now exposed to the searching eye of knowledge, regions of which we had not even a presentiment. It has brought us much nearer to grasping the plan that underlies all physical happening."

Only physical? After all, relativity is not an ordinary physical discovery. It is not an incidental addition to our knowledge of nature, nor is it a new piece of experimental information. It is not a new fact concerning the physical world but a new approach to all facts, a new method and a new logic. Cannot, perhaps, some benefits from this new logic accrue to other fields of knowledge? To social sciences? Perhaps to ethics?

To apply the logic and method of relativity to the study of ethical phenomena is the chief purpose of this inquiry, in the course of which I hope to answer the question announced at its head. I shall endeavor to show that, just as in physics, ethical phenomena are known to us and are generally knowable only in relation to a given set of conditions under which they are operative, but that, once known or determined under one set of conditions, they can, if properly evaluated, be transformed into any other set of conditions—that the transformation is an objective operation which, if actually carried out, will in each case define an ethical invariant. Obviously, the question re-

solves itself into the problem of finding invariants. Objectivity must be reduced to invariance. Thus it is hoped that relativity will put an end to the controversy between relativism and absolutism in ethics.

Relativism, as usual, fails to consider the problem historically offered for discussion. Its conclusions are in the nature of *ignoratio elenchi*: evading the question by diverting attention from the real point at issue and concentrating it upon something that has never been asked. What I, as a social being, expect from ethics is an answer to the question: What is right for me to do? Instead of giving either a material or at least a formal answer to my query, the relativist tells me that what is right for me to do is not right for other people to do, which is just as informing as when an orange is described by saying that it is not at all like an apple. The multiplicity of points of view with regard to right and wrong does not say anything about the nature of right and wrong.

Absolutism, on the other hand, is nothing but a pious desire for stability and permanence, laudable in its disposition, but often more than harmful in its consequences. Sublimation of a "local" frame of reference to the status of an absolute system leads to contradictions which it is impossible to reconcile because they are deliberately cultivated. Unconditional acceptance of an absolute frame leads the revolutionary communist to belittle, and even to deny, historical achievements of capitalism and of Christianity and at the same time to exalt materialism and the mechanistic world conception, both typical products of the capitalistic age. A still more exclusive sublimation of a "local" frame leads the belligerent Hitlerite to take proper pride in his own tribal deities and to make as much of them as possible, condemning everything that savors of communism or socialism, and yet at the same time almost slavishly to imitate the methods of his unenlightened enemies. Such common, perfectly obvious, and yet piously overlooked contradictions are

partial manifestations of absolutistic aberration based upon the unrestricted dictatorship of isolated frames of reference.

It will be shown in the sequel that, in accordance with the logic of relativity, no isolated frame of reference can be singled out for special distinction and be regarded as the sole owner of truth. One co-ordinate system in mathematics may very well be more convenient but certainly is not truer than any other. Similarly, a given set of conditions may give rise to a specific system of values which, under different conditions, may not emerge. But that does not mean that the values which do emerge under different conditions are either false or less valuable. Axiological invariants which are at work in the process of setting up values and standards can be obtained only by integration.

If this is true with regard to values, it applies a fortiori to commandments and standards. These, too, like plants and values, have their roots in the material world and often bear their fruit in the sphere of superorganic reality. Apart from the ground on which they grow, they cannot be properly understood. As detached norms they are inane, anemic, and frequently misleading. In the long run they tend to degenerate into empty phrases. In order to understand what they mean it is not enough to repeat the words and to endeavor to impress young minds with their sanctity. The ethics of incantation, even if practiced under the disguise of ethical absolutism or apriorism, may have a strong suggestive power but have no argumentative or dialectical value whatsoever. It leaves the commandments suspended in the air, or brings them down from a high mountain, but objects strenuously to any attempt to derive their descent from what evidently seems too plebeian an origin—from the conflicts and battles of real life.

The effect of such an attitude (to return to the starting point of our discussion) is really very deplorable. For a commandment, or an ideal, derived from a superior and "eternal" au-

thority has all the flavor of an exclusive creed and serves only to infuriate the faithful. Consult history! Is it not true that even the loftiest ideals, when they descend into the street, become tyrannical and oppressive? Is this not because they are made to "descend" rather than to "ascend"? In other words, is it not an effect of absolutism? Shown from a high mountain the ideal begins to dominate life as a detached entity from "above," from an imaginary sphere of absolute, celestial values, instead of helping life from "below," in a humble effort to find a remedy for its earthly pain and for its prosaic but for that matter none the less bitter tears.

Thus one can never properly understand the meaning of a commandment or an ideal by referring it to the sphere of pure and unadulterated forms. An ideal may psychologically become convincing because *it is said* to be derived from a high mountain; but it does not logically become more intelligible. By upward flight to the higher atmospheric regions ideals become monstrously inflated, but also are rendered empty in proportion to their apparent size and solemnity. The only way to prevent general axiological inflation from taking place is to come back to life, to the economic prose and problems of the time. Only there, at the point of contact with "time," the apparently "timeless" ideals acquire their content, meaning, and objectivity. They do not, for that reason, become "merely" a matter of opinion; rather the contrary is the truth: even opinions *at the point of contact* with actual life are effectively transformed into realities. It is all a matter of degree. Opinions, too, have an objective residue. For, as I have already suggested, this residue is not in the nature of a chemical substance left in the test tube after the evaporation of all the volatile ingredients but is itself a function which remains invariant in the multiplicity of its relative forms.

All this is admittedly vague and probably misleading. But it is precisely the vagueness of these introductory remarks which

suggests a plan for the whole inquiry. I am afraid that the popular presentation of the problem that I have attempted on previous pages may be too easily indorsed, or else disparaged, only because the critic will associate with the term "objectivity" a meaning different from the one I have in mind. My first problem, therefore, is to define my concept of objectivity. This cannot be done in a simple and popular way. The *kind* of objectivity needed for the solution of our fundamental problem cannot be excogitated at one stroke or be produced by the magic of a formal definition. Philosophical foundations are not like mathematical axioms. Only *at the end* of a prolonged discussion may the meaning of the proposed definition of objectivity be rendered clear. If, therefore, any degree of rigor is expected from the answer, we must be prepared for a long and utterly prosaic analysis of the nature of objectivity. This will be done in the first part of the present inquiry under the title, "The Logic of Relativity." In the second part the results of this dry theoretical inquiry will then be applied to ethics, and an attempt will be made to extend relativity to ethics in order to show that values are inherently relative and that precisely by being relative they define certain invariants which may be used as regulative principles for further valuations. In the third part I propose to discuss the concept "our time"; to attempt, if not a definition, at least a comprehensive description of it; and to draw some ultimate conclusions as to the "ethics of the day."



## II. *The Logic of Relativity*

"Just as in arithmetic we can deal freely with a billion objects without trying to visualize the enormous collection; so the tensor calculus enables us to deal with the world-condition in the totality of its aspects without attempting to picture it."\*

SIR ARTHUR S. EDDINGTON



THE MATHEMATICAL theory of relativity suggests a new interpretation of "objectivity" which is quite different from both the conventional materialism of substances and the inflated idealism of logical abstractions. In view of this theory such terms as materialism and idealism become obsolete. It is absurd to regard an invariant, a vector, or tensor, as material formations, as single, tangible, and movable entities in space like atoms or even electrons. But it is equally absurd to consider them as "mere ideas" or purely mathematical "operations." The nature of the physical world—the question, for instance, whether it is an expanding or a contracting world—depends upon the character of certain invariants and the structure of the fundamental tensor which forms its basis. Thus, commanding and dominating the whole universe, those invariants and tensors cannot be mere inventions of the scientific mind.

Modern physics seems to suggest that objectivity is a matter of transformation rather than of location in space and time. Transformations reveal certain invariant conditions; and wherever invariant conditions obtain, the physicist is certain<sup>1</sup> that he

\* *The Mathematical Theory of Relativity*, p. 3. By permission of The Clarendon Press, Oxford.

<sup>1</sup> Therefore, says Felix Klein prophetically, "wer den historischen Werdegang und schliesslich auch die Bedeutung der Invariantentheorie allseitig erfassen will, muss sich auf einen weiterblickenden Standpunkt stellen." Einstein has fulfilled this prophecy of Klein's.

has touched reality. The simplest illustration of objectivity in this sense is furnished by vectors. As vectors will play an important part in the ensuing argument, it will be convenient here to discuss briefly the concept of a vector as it is employed in physics and mathematics.

#### VECTORS AND THEIR TRANSFORMATION

According to the elementary definition, a vector is a directed magnitude. The familiar examples are force, velocity, acceleration. A vector in space is mathematically defined by three numbers representing its components along some arbitrarily selected axes. Thus the velocity of a particle in space, for example, can be uniquely determined if it is known how fast the projections of the particle move along the three rectangular axes. We can therefore use  $a_1, a_2, a_3$  to represent our vector, velocity, and can disregard its actual magnitude as a thing that can easily be derived from the components as need may arise. Since the mathematician knows nothing, and does not wish to know anything, about the nature of the process except its numerical behavior, he for his purposes completely identifies a vector with its three components, and thus *defines* a vector as a set of three numbers associated with a point in space.

This elementary definition is admittedly inadequate. For the three numbers,  $a_1, a_2, a_3$ , which are called the components of the vector, have no absolute value; they are by definition relative to some arbitrarily chosen co-ordinate system. The same vector which with respect to a rectangular system of co-ordinates is represented by the components  $a_1, a_2, a_3$ , will be represented with respect, say, to polar co-ordinates by other three numbers entirely different from the original set; we may designate them  $a'_1, a'_2, a'_3$ . But the important fact is that those two sets are not independent of one another. Those numbers are transformed according to a certain mathematical rule, so that, if a vector is given in one co-ordinate system, its compo-

nents are known in any other system. In physics—so we hear from the physicists themselves—it is understood that both quantities, or sets of quantities, express some kind of condition or relation of the world, and that this condition is the same whether expressed in  $a$ , or in  $a'$ . In other words, a physical vector is a world-condition, an index, or perhaps better, a matrix of objectivity, which is identified by the set of transformations associated with it. A world-condition cannot appear directly in mathematical equations; only its measure can. But measure presupposes a measuring code, that is, a co-ordinate system with respect to which the measuring is performed. Measurements which were independent of any co-ordinate system would characterize a physical utopia. For the physicist vector is not identical with its three numbers, or components. It has an independent existence. But this existence is not in the nature or manner of a substance.

What is important for our purposes is the fact that if certain numbers are assigned to a vector quantity in one co-ordinate system, *we are no longer at liberty* to assign *any* number to it in another system but *find* the new numbers already assigned to it by the equations of transformation. This restriction of our liberty, the binding force thus revealed in transformation, is conceived as objectivity. Hence objectivity is not regarded by the physicist as a substance, or matter, but only as an invariant in transformation. For he calls any function an invariant which, if expressed in one co-ordinate system as  $f(a_1, a_2, \dots)$ , can be transformed into any other system of co-ordinates, and becomes in the new system a function of some other set of variables  $f'(a'_1, a'_2, \dots)$ .<sup>2</sup>

<sup>2</sup> The term "invariant" has a variety of meanings in different parts of mathematics. The above-formulated meaning of the term "invariant" is derived from Riemannian geometry and is based on Professor Eisenhart's definition. Professor Eisenhart says: "If a function  $f$  of the  $x$ 's and a function  $f'$  of  $x'$ 's are such that they are reducible to one another by the equation of the transformations of the variables, they are said to define an invariant . . . . It should be remarked that the term invariant as thus used has a different connotation from its definition in the field of

This invariant factor does not resemble any of its relative expressions, nor do those expressions resemble it. The epistemological relation between the two is not even distantly analogous to that which obtains between a picture and its original.

#### TENSORS

Another illustration of physical objectivity, somewhat more complicated, is furnished by the so-called tensors. The word "tensor" has originated in structural mechanics in connection with the theory of stresses, hence its philological connection with tension. Algebraically, the term tensor simply means a collection of terms arranged in the order of their indices where each index takes all values from 1 to  $n$ . Vector is only a special case of tensor—a simplified tensor, as it were. Geometrically, it may perhaps be illustrated by a "point," or rather by the kind of points characteristic of a given space. According to Riemann, the specific manner in which the points of a space exist outside of one another depends upon the structure of its "linear element," or its differential,<sup>3</sup>  $ds^2$ .

The character of space, that is, the manner in which the points of space are located outside of one another, depends upon the coefficients of  $ds^2$ , and is in general a function of those coefficients. In the process of transformation from one co-ordinate system to another those coefficients behave in a well-de-

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algebraic invariants. In fact, any function of the  $x$ 's can be taken as an invariant and then its definition in any other co-ordinate system is determined by the transformation of co-ordinates." *Riemannian Geometry*, p. 6. It is precisely this specific definition of the term "invariant" which is convenient and important for our purposes.

<sup>3</sup> For the purposes of clarity the non-mathematical reader may visualize  $ds^2$  as the hypotenuse (in square) of a tiny (differential) triangle whose sides are  $dx$  and  $dy$ . According to the well-known Pythagorean theorem:  $ds^2 = dx^2 + dy^2$ . The coefficients in this equation ( $a_1$  and  $a_2$ ) are both equal to 1. This defines the nature of the Euclidian space. If you *imagine* the coefficients different from 1, you will be imagining other kinds of spaces; if, for example, you subtract from  $(dx^2 + dy^2)$  the value  $c^2 dt^2$  you will have a kind of imaginary triangle which defines the space-time of Relativity.

finer and orderly fashion. The mathematician says that they constitute a tensor. For, indeed, in their balanced behavior they rigorously express the characteristic "tension" of space, the tension which the points of space have, so to speak, against one another. They connect and tie the points of space more rigidly than iron rods. For iron rods can be destroyed, disintegrated, or even simply removed; but those intrinsic ties are irremovable and indestructible.

The Riemannian space, of which the spaces of Euclid or Einstein are special cases, has in general sixteen components, and is therefore described by sixteen coefficients, briefly indicated by the symbol  $g_{\mu\nu}$ , which constitute a tensor. It can be gathered from this example that, whatever its technical or mathematical expression, a tensor stands for a *group* of terms, not for one single term. It is grammatically a plural, mathematically a matrix. Yet groups are usually no haphazard collections but are results of some grouping operations. If we consider a group of elements it is ordinarily in recognition of the fact that in some respect they behave as one, as an organized collection. And, indeed, the coefficients in the equation for  $ds^2$  are not mutually independent quantities; if transformed to another system of co-ordinates they behave as an organized whole. We are not at liberty to assign values to the coefficients within another co-ordinate system; their values are determined by the equations of transformation, which, in the case of tensors, is somewhat more complex than in that of vectors. The general rule for the transformation of tensors is a question of mathematical technique and cannot be discussed here.<sup>4</sup> The crucial point for our present purpose is that the coefficients, if transformed to another co-ordinate system, become well-defined functions of some other variables; their changes are mutually

<sup>4</sup> Eddington says: "Tensors are quantities obeying certain transformation laws. Their importance lies in the fact that if a tensor equation is found to hold for one system of co-ordinates, it continues to hold when any transformation of co-ordinates is made."—*Mathematical Theory of Relativity*, p. 75. (Quoted by permission.)

co-ordinated—in other words, they define an invariant. This invariant is neither a thing or substance of any kind, material or spiritual, nor an idealistic phantom, a mere formula, or an assumption. It is a part of nature; in fact, the only part which is, and can be, known to us objectively, that is, independently of any co-ordinate system employed. The fact that the coefficients of  $ds^2$  can be transformed and in the process of transformation will retain their mutual relations is the best proof that we have here to do with something independent of our mind. But this something is not given to us as a single thing or occurrence; it is manifested to us essentially as a group and only through necessity in transformation.

The practical consequences of the tensor analysis are, therefore, immense. It brings us into contact with physical objectivity. No matter how firmly we may be convinced by an apriori intuition, or what not, that we live in a Euclidian space, *we do not know* which laws the physical space obeys until we know *how* events are transformed in space-time, or—in technical terms—what the fundamental tensor of space-time is. And this is not a matter of apriori intuition but a matter of laborious mathematical reasoning carried out on the basis of actual observation and experiment. What is physical space? For the theoretical physicist it is nothing more than three components,  $x, y, z$ , in his differential equations of motion. It has no resemblance to the empty void in which we seem to live and move around. Physical space is defined by the specified behavior of  $x, y, z$ , components within the equations of motion. And within these equations the components exist only in relation to time. Hence they constitute a part of a higher organized whole of space-time.

The structure of this whole depends upon, or, more precisely speaking, mathematically is a function of, certain tensors derived from the fundamental tensor<sup>5</sup> of the coefficients of the

<sup>5</sup> Eddington, *Mathematical Theory of Relativity*, p. 55.

line-element. The nature of each of such functional continua depends upon the conditions arbitrarily imposed on the coefficients of  $g_{\mu\nu}$  which ultimately determine the objective character of the universe. Accordingly, we obtain different model universes, such as Einstein's spherical universe, or De Sitter's expanding universe with the radius assigned as a function of time, or Lemaitre's pulsating and oscillating universe, which in a metaphysical form has been long ago predicted by the Fathers of the Church (e.g., Origen). All these varieties of the "best of all possible worlds," i.e., of our actual and objective cosmos, depend upon the character of the fundamental tensor chosen for the model. It is important to bear in mind that the properties of the universe in every one of those cases are determined by the form of the linear element,  $ds^2$ , whose definition taken relatively to different sets of arbitrarily assigned conditions is accompanied by certain inevitable consequences in the behavior of the whole world. The properties of the cosmos as a whole are predetermined by, or—if you wish—are reflected in, the structure of every one of its infinitesimal elements. Hence the significance of the differential as the bearer of cosmic objectivity.

According to Hermann Cohen, at present unfortunately almost forgotten, the differential is the source and origin (*Ursprung*) of reality.<sup>6</sup> Among mathematicians, Bernhard Riemann, who is primarily responsible for the modern methods of expressing the properties of various kinds of spaces at large by the forms of their fundamental differentials, has almost prophetically anticipated that "our knowledge of the causal interconnection of facts will depend upon the degree of precision with which we shall be able to trace their source to the infinitely small."<sup>7</sup> Thus modern relativistic cosmology has, in a strictly scientific form, fulfilled the old fantastic dream of Paracelsus

<sup>6</sup> Hermann Cohen, *Logik der reinen Erkenntnis*, pp. 28–34, 102–22.

<sup>7</sup> B. Riemann, *Ueber die Hypothesen, welche der Geometrie zu Grunde liegen*, p. 19.

in that it has found a way to express macrocosmic relations within a microcosm—"wie ein Firmament, ein Gestirn, ein Natur und ein Wesen da sey unter getheilter Gestalt und Form."<sup>8</sup> Only that instead of "man" the microcosm is now an abstract symbol,  $d\mathcal{r}^2$ , "in which the properties of the whole are reflected as though in a tiny mirror." The *structure* of the universe remains unaltered "in heaven and upon earth," in the large and in the small, in the infinitely large and the infinitely small. For this structure is an invariant which has neither shape nor form, is neither large nor small. The nature of space is only crudely described by the location and mutual relation of lines and angles in a visible figure; it is much more precisely and conveniently described by the distribution of coefficients in the fundamental quadratic form, which is not a matter of visual intuition. For, according to Riemann, not only is the general and abstract externality as such defined by differentials but the specific manner in which the points of a given space exist outside of one another is also based upon the structure of its infinitesimal elements. In other words, the texture of space depends upon the structure of points. Hence, visual relations have their source and origin in the domain of the "invisible," macrocosmic in the microcosmic relations:

Denn was verborgen begriffen wirdt, gibt allein den Glauben; den ausgang unnd das vollkommen geben die Werck,—die Werck seind sichtlich. Also sichtiges und unsichtiges in einen und nicht in zweien, die gantze vollkommene troestliche Erkantnuss, darin dies Seeligkeit ist, und alle gute Arbeit, lehr und underricht ausgebet.

I have introduced a reference to Paracelsus only to show that, even though in point of information and technical equipment he is incomparably inferior to modern science, yet in point of logic he resembles and anticipates the latter in some very vital

<sup>8</sup> Paracelsus (Strunz), *Das Buch Paragranum*, p. 47.

respects. The early Renaissance magician and the founder of modern many-dimensional mathematics are stages in the same process of thought. Riemannian space is an "invisible," i.e., a non-intuitive construction. It is devoid of all form and becomes something determined only through the advent of a material content which determines its measurable properties. But the material content is something added to the extension, something that cannot be derived from extension but is responsible for the form that extension is bound to take. In other words, it is not geometry that determines experience but experience which determines geometry. According to Weyl:

The essential point is that a piece of space has no visual form at all, but this form depends on the material content occupying the world and, indeed, occupying it in such a way that by means of an appropriate arrangement of the mode of occupation I can give it any visual form whatsoever . . . . The laws according to which the space-filling matter determines the metrical structure are the laws of gravitation. The gravitational field affects light rays and rigid bodies in such a way that when we use these rods and rays in the usual manner to take measurements of objects, a geometry of measurement is found to hold which deviate very little from that of Euclid in the regions accessible to observation. These metric regions are not the outcome of space being a form of phenomena, but of physical behaviour of measuring rods and light rays as determined by gravitational field.

Philosophically speaking, this is a strikingly Leibnizian conception; and Leibniz can historically be regarded as a link connecting Paracelsus with Einstein. In order to evaluate philosophically Einstein's contributions, one must try to establish historical connections of far wider range than physics and must think of him not only in terms of modern physics and mathematical originality but also in terms of various traditions in thought which he with unprecedented universality, has brought to completion. In him philosophy, logic, theology, physics, and mathematics become reunited.

## RELATIVITY IN LOGIC

To apply the concept of relativity to the study of logical problems, and to sketch the prospective advance in depth and clarity which logical sciences may gain through it, is the purpose of this chapter. It is my contention here that mathematical and physical relativity is only a special case of a far more fundamental situation which may properly be termed the general relativity of logical groups. It will be shown that relativity is a property, not merely of our measuring processes, as is commonly held by the physicists, but of all our thinking processes. Measuring is only a special case of thinking. By calling it an "operation" the physicist only obscures its meaning as a rational process. For the physical action of laying a measuring rod on an object and moving it in a familiar way along the straight line does not properly constitute measuring as an experimental device. The inchworm also lays its length along the path of its motion, and if you smear its head with ink it will leave marks on a sheet of paper; no one would say, though, that the inchworm measures the sheet of paper. Measuring, with its specific relativity, is not a physical agency but a rational function; and its structure as a logical process depends upon the structure of ideas which are logical vectors. Every rational function is a directed function whose trend is determined by the context in which it is defined. I shall now proceed to prove this similarity.

## IDEAS AS LOGICAL MATRICES

It is customary to regard ideas either as immutable entities each representing a single value wholly determined by its fixed location in the realm of logical forms or as changeable fragments of human mentality, subject to growth and evolution, as transient and fickle as human nature itself. In other words, to use a mathematical analogy, ideas are commonly treated either as constants or as variables. This appears to be a perfect dis-

junction, a *tertium non datur*. And yet the theory of relativity, if extended to logical matters, seems to suggest that ideas, i.e., logical units employed in thinking, whatever they are in their substance, in their functional significance are neither single constants nor single variables. For they are not single entities at all. They are sets or groups, roughly speaking, collections, something in the nature of an algebraic matrix or, more precisely, of vectors. For they are expressions of a certain intrinsic invariance within a given group of logical transformations. "Idea" is really a plural, not a singular. Like "army," or "array," it is a collective term. And this, it must be emphasized from the outset, not merely in the sense that every idea is a collection of attributes, but in the sense that the whole totality of attributes constituting a given concept is merely a relative manifestation of the content of the idea underlying it and is just as different in various contexts of discourse as "distance," for example, is different with respect to different frames of reference.

It is improper to ask for the meaning of an idea. "Idea" has many meanings, not *a* meaning. And this, again, is not because "we" as conscious and active beings are often compelled to assign different meanings to the same word; such an interpretation of logical relativity is precisely what I endeavor to combat: it would render my position hopelessly relativistic. The multiplicity of meaning that the theory of relativity suggests is not a psychological affair. It is inherent in the meaning itself as a purely logical phenomenon. Relativity holds true no matter what interpretation we shall choose to adopt with regard to the nature and substance of ideas; we may choose to regard them as mental facts, or biological adaptations, or even as neutral entities with all the Platonic implications that are suggested by the neo-phenomenological pet word, *Geltung*. The relativity of meaning holds true as a purely logical fact entirely independent of our metaphysical or even our epistemological views. It is a strictly descriptive phenomenon.

It belongs to the essence of the individual, as a *single* entity, to have a "face." Every idea, on the other hand, has a multiplicity of "faces"; it confronts the world in a number of ways. Its "face" depends upon the mirror in which it is reflected, i.e., upon the context in which it is defined. An idea can never be fully defined, or even described, in a single manner. Its complete determination would be an integral of all possible descriptions, each in itself fully complete—a determination which is far beyond our intellectual capacity. Of all possible manifestations or definitions of an idea we usually possess a very small number. The rest are vacant places, prospective solutions, or rather problems in transformation. It is for this reason that our ideas, like atoms, consist largely of emptiness. Our logical determinants contain mostly zeros. Only here and there, sparingly scattered over the matrix of the logical determinant, we find something approaching a real value different from a question mark and not vanishing to zero. Such values, known as definitions, are difficult to obtain in a satisfactory manner. They are expressions of the idea in question with respect to a properly, and profitably, selected frame of reference. We shall call such expressions "concepts."

#### THE INTRODUCTION OF A FRAME OF REFERENCE

The selection of a frame of reference, or convenient system of logical co-ordinates, is a necessary condition of any expression of ideas. Idea does not mean anything to us unless it is expressed in concepts. And in order to express it in concepts some reference frame must be employed. With respect to different frames of reference the same idea shows different, often irrecognizable, faces. Its logical expressions depend essentially upon the choice of logical co-ordinates, i.e., upon the set of fundamental notions in terms of which the definitions are framed.

It is in this sense that we regard our ideas as fundamentally

relative—not in the sense of “contextual monism,” which maintains that the context is virtually a part of the meaning of a given idea and is directly contained by it; nor in the sense of philosophical relativism, which holds that ideas change from generation to generation and from man to man. They are relative in a far more fundamental and radical sense. For they objectively and logically *mean* nothing except relatively to an arbitrarily chosen point of view. And there is always a multitude of possible, and a still larger number of impossible, points of view. None of them guarantees absolute truth. None can be singled out for special distinction. But each concept contributes something to our knowledge of the whole set which we call *idea*. And only by a process of combining the results obtained within every single reference-frame, i.e., by integration, do we arrive at what we commonly call “truth.”

#### ARISTOTELIAN AND NON-ARISTOTELIAN LOGIC

Our conventional logical rules—syllogisms, definitions, etc.—are largely confined to conceptual operations. The traditional, Aristotelian logic is a logic of concepts. This, I think, is the main reason why logicians are seldom satisfied with its precepts and its results. The real thinking begins only where the Aristotelian logic ends. It begins with the transformation and co-ordination of concepts. It consists of operations, not with individual concepts but with groups and matrices.

The logic of matrices is fundamentally non-Aristotelian in its very nature. The processes of dialectical integration do not fit into the narrow limits of syllogistic forms and proofs. They are not subject to rigid rules. Their results—ideas—are not fixed entities but groups of variables, and therefore do not strictly follow the laws of contradiction or of the excluded middle. It is for this reason chiefly that they cannot claim to be conveniently “clear” and “distinct.” Clearness and distinctness are properties of the concepts. Ideas are seldom, perhaps never,

clear. They may be profound or shallow, adequate or inadequate, rich or empty; but clearness is not their virtue. Concepts are clear and distinct—in proportion as they are unreal, i.e., are merely symbolic. But ideas cannot be called clear for the same reason that a number or an army cannot be called clear. The property of clearness has here no meaning.

This does not mean, however, that Descartes' precepts are no longer valid. Descartes does not deal with ideas in the sense in which the term is here used. What he calls ideas are really concepts. And concepts must, indeed, be clear and distinct in order to provide material for the formulation of ideas. The existence of non-Aristotelian logic does not invalidate the laws and rules of the Aristotelian code, just as non-Euclidian geometry does no harm to the Euclidian system.<sup>9</sup>

#### THE ARISTOTELIAN DOCTRINE OF DEFINITION

Aristotle believed that two different definitions of the same thing are impossible (*πλείους οὐκ ἐνδέχεται ὀρισμοὺς εἶναι*). For a definition, according to his doctrine, is a proposition signifying a thing's essence, and a thing can "evidently" have only one essence. In this sense true definitions are "absolute" (*τὸ ἀπλῶς*); i.e., only one definition of each thing is possible, and this one excludes all others as false. Let me now demonstrate that this doctrine does not hold.

#### LOGICAL VARIABLES

"Man" has been variously defined as "featherless biped," "pithecanthropus erectus," "time-binding animal," "living image of God," "son of God," "political animal," "rational

<sup>9</sup> A vague anticipation of these two types of logic is contained in Oswald Spengler's words: "Es gibt eine organische Logik, eine instinkthafte, traumsichere Logik allen Daseins im Gegensatz zu einer Logik des Anorganischen des Verstehens, des Verstandenen. Es gibt eine Logik der Richtung [*Vector*] gegenüber einer Logik des Ausgedehnten."—*Der Untergang des Abendlandes*, Vol. I, p. 152. A preceding reference to Göthe puts in a direct connection with the theory of transformation. Cf. p. 130.

animal," "maker of history," etc. The formal logician will probably object to defining "man" as "son of God" on the ground that the definition is vague and figurative. But for the theologian it locates "man" precisely. On the other hand, the definition commonly considered valid among logicians, "man is rational animal," means absolutely nothing to the biologist. Not one of the definitions above, I believe, is absolutely faultless; but none can be said to have an absolute advantage over all others. Each is relatively valid within its own field. That is, each serves the purpose of identifying "man" with respect to some system of logical co-ordinates. But the identifying labels are different in each case, and often even unintelligible in terms of one another.

Another illustration: "Straight line" can be defined as the "shortest path between two points," or as an "entity in space which is uniquely determined by two points," or as a "geodesic on a plane surface," or as a "curve whose tangency at every point is of the second order."<sup>10</sup> Given a system of rectangular co-ordinates in a plane, a straight line is defined by the equation  $ax + by + c = 0$ , which allows an unlimited number of transformations into other co-ordinate systems.

What, then, do we mean when we say "straight line"? The question has no meaning unless we specify the circumstances under which the definition is to take place. "Straight line" is not a logical constant. It means different things under different logical circumstances; that is, its meaning varies according to the context in which it stands.<sup>11</sup>

These illustrations clearly show that logical terms, whether relative (in the conventional sense in which "father" is a relative term) or not, are variables, not constants. But they are variables in a very specific sense. In what sense?

<sup>10</sup> Eisenhart, *Differential Geometry*, p. 8.

<sup>11</sup> If interested, the reader may find a brilliant discussion of the relativity of definitions in Pareto's *The Mind and Society*, Vol. I, pp. 335 ff.

## TWO KINDS OF MATHEMATICAL VARIABILITY

There are two distinct kinds of variability in mathematics. An  $x$  may be regarded as "variable" when it is allowed to assume different numerical values within a process of change. Thus in the customary notation of analytical geometry  $x$  represents any numerical value between  $-\infty$  and  $+\infty$  that may be assigned to the abscissae of a moving point. Every letter used in algebra represents *any one* of a certain class of elements and is in this sense a variable. On the other hand, all the values of  $x$  from  $-\infty$  and  $+\infty$  may be simultaneously altered by the application of a new system of co-ordinates. All values of  $x$  can be transformed into  $x'$ , as, for example, when rectangular co-ordinates are changed to polar co-ordinates. In the first case  $x$  is identified with *any one* of the series of values:  $x_1, x_2, x_3, \dots$  which  $x$  is allowed to take in the process of change. In the second case  $x$  represents the whole collection of values which are transcribed into a new set  $x'$ , which in turn may be transcribed into another set,  $x''$ , etc. In this latter case  $x$  is in all its values identified with a series of transformations:  $x', x'', x''', \dots$ . This is a series of series, a set of sets, not a set of individual values. The whole process of change, i.e., the entire set of values,  $x_1, x_2, x_3, \dots$ , as a whole, is now referred to a different frame and assumes a different form, such as  $x'_1, x'_2, x'_3, \dots$ . All  $x$ 's become  $x$ -primes. All  $x$ -primes may, in turn, become  $x$ -seconds, etc. My monthly income, for example, with all its fluctuations may be expressed in dollars ( $x$ ), francs ( $x'$ ), pounds ( $x''$ ), etc., just as the general equation of parabola can be expressed in rectangular, homogeneous, polar, or any other co-ordinates. Thus the first kind of variability, i.e., when  $x$  assumes different values usually causing some other variable  $y$  to change, is concerned with individual values; and its process may be discontinuous or continuous. The second kind of variability, expressed by transformations, is in the vast majority of cases concerned with sets or groups of values, changing all the

individuals constituting a set simultaneously and discontinuously. It is something in the nature of a mutation.

To express the second type of variability, i.e., when  $x$  in all its values is transformed to another system of co-ordinates, the term "variant" may be proposed as distinct from "variable" and as opposed to "invariant." The difference between the two types of variability, i.e., between variables and variants, is so obvious that for the mathematician there is no danger of confusing them. But the term "variable" originally employed in mathematics has found wide application in scientific and philosophical literature; and there it is not always clear just what kind of variability is meant in each particular case. Logicians, for example, often speak of variables when they really have variants in mind.

#### INVARIANTS

It is in connection with the second type of variability that the term "invariant" arises, and only in this connection has it its precise mathematical meaning. Algebra teaches us that the "form" of an algebraic expression can often be changed or "transformed" in various ways without altering the numerical value of the expression when numbers are substituted for letters. Thus, to use the most elementary illustration, the expression:  $a^2 + 2ab + b^2$  can be written in what is sometimes called logarithmic form  $(a + b)^2$ ; and, similarly,  $a^2 - b^2 = (a + b)(a - b)$ . The peculiar feature about these expressions is that they remain numerical identities for any values of  $a$  and  $b$ . In a more complicated case, the so-called discriminant of a quadratic form,  $ab-h^2$ , remains unchanged under a linear transformation, and is called an invariant.<sup>12</sup>

We thus come to the following definition of an algebraic invariant. If we have a system of polynomials in the variables  $x, y, \dots$ , and a set of transformations of these variables, then

<sup>12</sup> Turnbull, *The Theory of Determinants, Matrices, and Invariants*, p. 129.

any function of the coefficients is called invariant with regard to these transformations which is unchanged when the polynomials are subjected to these transformations.<sup>18</sup>

#### GEOMETRICAL INVARIANTS

The notion of algebraic invariance has historically originated in connection with the problem of the transformation of co-ordinates. Many problems of geometry call for the operation of transformation. For geometrical relations which have a very complicated form with respect to one frame of reference (for example, rectangular co-ordinates) may suddenly acquire a very simple and elegant form with reference to some other frame (say, polar co-ordinates), and vice versa. Among all possible transformations, two groups are particularly important: parallel displacement (i.e., change of origin), and rotation of axes. Those are called linear transformations. With respect to linear transformations, which define free movements of figures in space without deformation, innumerable properties of figures remain invariant. Such properties are called geometric properties. Geometry, therefore, is nothing but the study of invariant relations in space.

The method of reducing geometry to the study of invariants we first find introduced by Grassmann in his *Ausdehnungslehre*. He devised a method by which geometrical relations could be expressed in the form of determinants which greatly facilitate the discovery, and the expression, of invariant properties in the most general form. Reference to figures becomes unnecessary, and the number of co-ordinates in the formulae entirely irrelevant. Grassmann's results are true no matter how many rows and columns his determinants may have and therefore are applicable to extensive media of any number of dimensions. In the majority of cases we cannot visualize or picture his results;

<sup>18</sup> This definition is based on Turnbull, *The Theory of Determinants, Matrices, and Invariants*, p. 138.

and that is partly, I think, what makes the perusal of his *Ausdehnungslehre* such a difficult matter. But we know that, if we had suddenly acquired the intellectual power to contemplate a four- or five-dimensional continuum, we should find his discoveries corroborated and the relations predicted actually taking place.

## LOGICAL INVARIANTS

From the logical point of view an "invariant" may be described as a structure which renders different sets of variables transformable into one another and which, therefore, controls that transformation. Invariance has, logically, no meaning unless something is assumed or postulated which is independent of our operations of transformation. If I have a thousand dollars, I can express it in francs, marks, pounds, or kroner; I can adopt or devise any monetary unit. But the "amount of money" under normal conditions is not affected by those transactions. We usually say that a thousand dollars is a thousand dollars whether we take them to England or to France or elsewhere. It is evident to any unprejudiced mind that the reference to dollars to indicate the invariance of the "amount" is merely a matter of habit, just as in physical matters is the habit of regarding "our" system of co-ordinates as stationary. The Englishman will think of the same "amount" in terms of pounds or guineas. But it is a tacit assumption in both cases that there is something—in our everyday language we call it the "amount of money"—which remains unaltered by the transformation. Just what it is is not easy to say. It can obviously be neither dollars nor pounds; or it can very well be both dollars *and* pounds. But it cannot be *either* dollars *or* pounds. Economists vary widely in their definition of this "something." But it is fairly evident that without it there would be no meaning in our transactions. Exchange as a kind of transformation would cease to exist were there no economic factor which remains "the

same." This factor may be a mere figment of our imagination, a mere economic postulate, an ex-cogitated apriori; then our transactions are also purely subjective. But at least as a postulate, as a *Grundsetzung*, it must be there. For otherwise the word "exchange" would be a mere meaningless sound.

Now, dollars, francs, etc., are variants, not just variables in the elementary sense; whereas the "amount of money" involved in the transaction is something in the nature of an "invariant." At the same time it is something fundamentally more real and objective than the relative and therefore more ephemeral dollars, francs, pounds, etc. Thus, on the basis of pure mathematics we arrive at a somewhat Platonized conception of reality which agrees entirely with the results of modern physics.

Before proceeding any further let me adduce another illustration. I can *conceive* of a geometrical configuration, such as a parabola, in terms of rectangular co-ordinates and *define* it by means of an equation involving  $x$  and  $y$ . But I *think* of something corresponding to my definition only when, and only in so far as, I am in a position to realize that  $x$  and  $y$  are *not essential to my definition*, that I can express it equally well in terms of polar or any other co-ordinate system, *and that its expression is no longer a matter of arbitrary definition* but is uniquely determined by the equations of transformation. In other words, a single definition means nothing objectively. It remains a purely verbal affair as long as it stays isolated. But the moment it is transformed to another frame of reference it at once acquires an objective significance. It is, therefore, only by means of transformation that we come into contact with what we vaguely call the object of thought. For in the process of transformation we come to realize that parabola is not entirely a matter of arbitrary definition; yet by defining it arbitrarily as such and such we hit upon something that is no longer arbitrary, namely, the determinism in transformation. Any curve, or function, once arbitrarily defined in terms of  $x$  and  $y$  has a

perfectly determined analytical form in any other co-ordinate system. The curve itself is not identical, of course, with any of its analytical expressions. For the curve is one; but its equations are innumerable. Nor can it be identified with its intuitional shape. For its shape, like that of the much-discussed "brown penny," depends upon the point of view from which it is observed. Hence the shape is just as multiform as are the equations. Nevertheless we *think* of a parabola as a unique entity in space variously defined by any of those equations, shapes, or symbols. The mathematician in his beautifully unphilosophical language describes the situation by saying that *if* a function expressed in  $x$  and  $y$ ,  $f(x, y)$ , can be transformed into any other co-ordinate system and becomes in that system a function of some other variables,  $F(u, v)$ , determinable from the equations of transformation, such function *is said to define an invariant*.<sup>14</sup>

From the mathematician's point of view such a definition of an invariant may suffice. But the logician cannot be satisfied with it. For what is the invariant, and where is it to be found? It is not identical with the function in any of its forms; for the function changes its form completely from one co-ordinate system to another. It *is said* to define an invariant! But there is a long way from saying to thinking.

#### A FUNDAMENTAL GENERALIZATION

The transformation of co-ordinates in geometry and the change of variables in algebra are special cases of a more general logical operation of referring a rationally definable situation to two or more different frames, i.e., of regarding the situation with respect to different contexts of discourse. By "context of discourse" I do not mean any possible set of propositions, or "text," in which the situation in question may occur or be discussed, but one in which, or by means of which, it can be properly defined or at least described. Thus the "lungs"—to use a

<sup>14</sup> Eisenhart, *Riemannian Geometry*, p. 6.

biological example—can be defined with respect to their purpose as organs of respiration, with respect to their function as mechanisms for taking oxygen and discharging carbon dioxide, with respect to their structure as a series of passages traversed by the air which terminate in two very complex sacs projecting freely into the cavity of the thorax, etc. Here purpose, function, structure, etc., are contexts of discourse, or—as I prefer to call them in order to avoid misleading historical associations—different systems of logical co-ordinates. We shall, therefore, define logical co-ordinates as the contextual frame of reference (explicit or implicit) *which sustains a given definition.*

#### CONCEPTS AND IDEAS

We have distinguished between logical contents which are relative to their respective frames of reference and are therefore variable (in the sense of variants), which we shall call *concepts*, and the invariant factors which control the process of transformation from one frame of reference to another, which I have designated *ideas*. Concepts are, if not exactly obtained, at least rigorously formulated by a logical process called definition. Ideas, on the other hand, can never be learned by definition, even though, strictly speaking, it is precisely the idea, not the concept, which is defined.

The distinction between concepts and ideas, whether terminologically justified or not, is nevertheless real and genuine. I may be wrong in selecting these particular words to designate the difference. But the distinction itself, whether correctly described by this terminology or not, is a logical *fact*. A distinction must be drawn between a rational definition of what a given term means, which is always relative to some particular system of logical co-ordinates and is, therefore, fundamentally multiple and logically variable, and the total, or integral, idea of the term, which remains invariant for all transformations. The following consideration may clarify the distinction.

It will be observed that defining concepts can rarely be employed in place of the terms defined. This is a rather paradoxical phenomenon which shows that we rarely use words precisely in the sense in which we define them. For we define concepts—or at least we commonly believe that we define concepts. But in actual thinking we inevitably employ ideas.

“Man” and “rational animal” are supposed to be logically equivalent. But to say that “this rational animal is hungry” is either an expression of sarcasm or else sheer nonsense. In any event, it means something other than what is meant by the statement “this man is hungry.” To inform my friend that this man had dinner with me is quite proper, but to remark that this featherless biped had dinner with me might be under certain circumstances quite insulting. But why? Is it just because we are unaccustomed to hear such statements? Do they seem grammatically strange? Hardly that. The strangeness that we feel in such cases is not of a verbal but of a strictly logical nature. It extends to all situations of similar character. Though we state “ $S$  is  $MN$ ,” we still cannot substitute  $MN$  for  $S$  in either speaking or actual thinking. The two remain logically distinct and different despite their identification by the judgment.

“Duncan is in his grave,” Macbeth (iii, 2, 22) reflects, anxious to pacify his disturbed mind. Suppose I substitute for “grave” its definition from the *Oxford Dictionary*. Duncan, then, will be confined to “an excavation in the earth for the reception of a corpse.” The absurdity of the substitution is evident. Yet the absurdity is not linguistic. It is logical.

“This man is hungry” and “this rational animal is hungry” are two logically different statements. For “man” is a term that stands for a set of definitions, it is a matrix; whereas “rational animal” is just one member of this set. The fact that linguistically we employ the same name for “featherless biped” and for “rational animal” has a very profound significance but

should not be interpreted to mean that the two concepts are identical. In point of material, they are totally different; they have nothing in common. "Man" as expressed in its definitions is a variable entity which is open to an infinite variety of shades of meaning. Each meaning constitutes a concept which indicates a set of properties such as "rationality" and "animal life." In its integral signification, however—we call it idea—"man" is the limit toward which this group of definitions tends when our experience concerning human nature approaches its prospective totality. Hence the idea is a set of sets. It is an expression of an infinite number of sets of properties, each set being associated with one of the infinite number of systems of logical co-ordinates.

What happens in the process of a transformation is a sudden and discontinuous change. The elements constituting a concept are not dropped, or added, one by one. They are changed all at once. Comparing, for example, two expressions, "geodesic on a flat surface" and "the shortest path between two points," we find no common elements in them. Logically they consist of different material. And yet they both mean precisely the same thing: "straight line." Neither of the two concepts is a part of the other. They are logically fully different. And yet they mean the same thing. The situation is radically different from, say, my immature and my advanced notions of "differential," which—as concepts—are simply different but not logically transformed. Hence transformation is, not a subjective process determined by accidental changes in the point of view, but an objective logical occurrence determined by the intrinsic necessity of the situation itself.

Psychologically this suddenness is the characteristic feature of the situation. We usually "understand" things quite suddenly. In solving a mathematical problem we may painfully work for hours until we reach the point of complete mental exhaustion. Irritated and depressed we may go to see a moving

picture or to attend a President's reception, as the case may be; and there in the midst of the silliest picture or the emptiest conversation we often "see" the solution all of a sudden. The shock of the unexpected is evidently reflected in the abstracted countenance that we happen to display at such moments and for which we receive the reputation of being absent-minded. It is rather paradoxical that it is precisely at such moments of conspicuous absent-mindedness that we reveal the greatest evidence of mind, nay, perhaps the only occasion when we really have mind in the sense of active vision. Light usually comes upon us as a flash. In a fragment of a second, perhaps—who knows?—in no time, you comprehend the most complicated situations which in the logical form of successive steps, you feel, will take you months and even years to express. A novel, a play, a book stands clearly before your mind, and you know that it is merely a matter of time before you express it in words. What you live through at such moments is what is commonly called inspiration, which in its roots is nothing more than logical transformation.<sup>15</sup>

## GENUS AND SPECIES

No theory of objectivity can escape a reference, in one form or another, to the problem of the universals. At this stage of the argument it is convenient to insert this reference, which may seem superfluous for the moment but without which the further developments, I am afraid, would not be fully intelligible. The next two paragraphs will, therefore, be devoted to an attempt to apply the notion of logical mutability to the relation between genus and species. It will be shown that genus, as it actually manifests itself in syllogistic forms, is not, and

<sup>15</sup> The truth of the above is testified to by scientists as well as by artists. In Duhamel, *The Pasquer Chronicles*, we find the following passage: "It is said that nature never does things by leaps. But if I consider . . . my own life and personal experience, then I see nothing but leaps and bounds, right-about-face surprises, changes of mind, inspirations, and retreats."

has no need of being, an absolute constant, but is—logically, not psychologically—a mutable entity. The argument will indirectly demonstrate what is here meant by mutability of logical units.

The logic of the schools is based upon the idea of the immutability of classes. It is generally understood and commonly taken for granted that the class, or genus, is not affected, or in any sense changed, by the specific difference which is believed to be just mechanically added to the genus in order to produce what we call species. "The species," says J. S. Mill in full accord with scholastic tradition, "must connote all the attributes which the genus connotes . . . and it must connote something besides; this surplus of connotation is *differentia*; or to state the same proposition in other words, the *differentia* is that which must be added to the connotation of the genus to complete the connotation of the species."<sup>16</sup> In other words, the logical transition from genus to species is represented as a transition from less to more complex forms, accomplished by adding one or more new characters to those already present in the genus. Similarly, the transformation of one species into another within a given genus is believed to occur by changing over a few characters without altering others.

In this argument it is tacitly assumed that the addition of the *differentia* to the genus does not change anything in its structure and leaves the elements of the genus entirely unmodified. This unwarranted assumption forms the foundation of our formal logic and is, as a rule, tacitly admitted as an axiom indispensable for all logical operations. For, it is argued, if we were obliged, or even permitted, to modify the genus every time we added a few attributes to it in order to obtain a species

<sup>16</sup> Cf. Porphyrius, *In Aristotelis Categoriae Commentarium*, where the following definition is given: Διαφορά ἐστὶ, ἢ περισεύει τὸ εἶδος τοῦ γένους . . . ὁ γὰρ ἀνθρώπος τοῦ ζώου πλέον ἔχει τὸ λογικὸν καὶ τὸ θνητὸν . . . Similarly, Sigwart: "Every concept which admits of further determination by different characteristics is included by the addition of these in various other concepts" (*Logic*, I, 43 n.).

—if, for instance, the meaning of the term “vertebrate” changed in every particular set of vertebrates, being different in mammals, fishes, amphibians, and reptiles—classification would be rendered impossible and the whole process of thinking seriously handicapped.

#### CRITICISM OF THE PRINCIPLE OF IMMUTABILITY

It is, however, clear to any unprejudiced mind that the mode of co-operation between *genus* and *differentia* is not adequately expressed by the process of mere addition. In defining “bird,” for instance, as “a craniate vertebrate with wings,” we do not add wings to something that is wingless. For craniate vertebrate as a genus is neither wingless nor winged. On the other hand, by depriving a bird of its wings, feathers, beak, and whatever else may be regarded as characteristic of its class, we shall obtain a mutilated bird but never the craniate vertebrate as such. The difficulty is by no means concerned with our inability to construct a general *picture* of a “craniate vertebrate” (Berkeley’s objection to Locke), but with the purely objective impossibility with regard to the meaning of the concept. It is impossible to obtain a generic term—in point of meaning, not picture—by depriving less general forms of the attributes peculiar to the latter. For the subtracted attributes have a definite organic relation to the rest, and each of the remaining attributes derives its specific form from those which are subtracted. Presence of wings has a modifying influence upon practically everything that can be found in the animal, everything in a bird is characteristic of the bird. For every particular feature in the structure of birds stands in a definite functional relation to the wings, as nearly everything in birds depends upon adaptation to aerial life. The whole plan of their organization—from the structure of the skull to the unusually developed sternum; from the modification of the forelimbs into wings and of the hindlimbs into very original organs of locomotion, down to the peculiar

constitution of the respiratory system; from the form, position, and size of the bones “down even to the microscopic structure of the tissues”—all these peculiarities of their growth and build are modifications produced by the bird’s unusual environment or are consequences of its having wings. No matter how many peculiarities we shall be able to enumerate, they all will be not less peculiar to birds than the wings are. There is hardly anything in the biological structure of birds that can be found in precisely the same form in other animals.

Thus the sum total of generic characters is not a given constant; they all vary from species to species, from case to case. It seems, therefore, impossible to obtain a general concept by the so-called abstraction of attributes. On the other hand, it is equally impossible to arrive at a specific concept by construction, i.e., by adding attributes. What would seem more natural than to derive, for instance, all species of reptiles from their class conception by adding different characteristics for each species? For the class “reptilia” is so well defined and each species seems to have the class characters so well expressed that they are clearly discernible within each progressive subdivision. They lie, so to speak, on the surface! Each member of the class has, apart from the inner skeleton common to all vertebrates, a characteristic exoskeleton that covers the body in the form of horny scale; while the negative feature of having no gills and the presence of certain characteristic structures in the embryo sharply divide them from the amphibians. The structure of skull and bones, the organization of the organs of reproduction, certain peculiarities of the respiratory system—all these characteristic features are clearly expressed and obviously present in every species of the reptile class. And yet we cannot construct a single reptile by adding a number of extra characters to that original scheme; for the scheme changes from order to order, from species to species. The additional characters *affect* in innumerable subtle ways the characters which are re-

garded as fundamental, so that there is no definite complex to which the latter may be added. An exoskeleton, for instance, is the characteristic feature of all reptiles. But consider the different forms under which this characteristic trait may appear!

Compare, for instance, the large horny plates of a tortoise with the fantastic pigment cells of the chameleons which contract and expand under the influence of the nervous system, thus changing the color of the whole body; or the big, awkward tongue of an alligator with the remarkable mouth organ of the same family of chameleons, which is so extensile that it is capable of being darted out with lightning-like rapidity to a distance sometimes exceeding the length of the trunk. Is there anything within both tongues which, if enlarged by one set of attributes, will result in the alligator's tongue, and if connected with another set, will take the form of the prehensile organ of the chameleon? Is there any conceivable way of constructing the skin of a chameleon from the heavy plates of a tortoise?

Biologists have long come to the conclusion that there is no such thing as an isolated character. Logicians were by no means slow in endorsing this result. Berkeley and Hume have actually anticipated it. In modern times Husserl in Germany and Schiller in England have stressed its importance. Yet, on the whole, the situation is far from clear. Neither a phenomenological nor a relativistic solution of the problem can be regarded as final. It still remains puzzling: how is it possible that the *common* properties of two species may differ. If they differ they are not common. But if there are no common properties, the things cannot be compared to one another; there is no resemblance, no classification.

#### MUTATIONS

The relation obtaining between genus (*abcd*) and *differentia* (*mnp* and *qrst*) admits of experimental proof. De Vries' experiments with mutations have conclusively shown that nature

in producing new species proceeds by treating the generic characters (*abcd*) as variables, not as constants. It was believed for a long time that evolution is a continuous process resulting from the accumulation of minor changes, the so-called fluctuations, which ultimately prove valuable to individuals in their struggle for existence. De Vries' work on *Species and Varieties* finally brought this view to complete bankruptcy. On the basis of wide experimental evidence, he comes to the conclusion that the evolutionary process at large has been accomplished by discontinuous steps, being caused by "sudden" and "unexpected" changes which get hold, not of one or two individual characters, but of the whole form at once, leaving not a single character unaffected by the change. He calls those changes "mutations." The essential peculiarity of mutation, whereby it differs from ordinary and inconsistent fluctuations, is, according to De Vries, the complete novelty of form and structure in which not a single character is left unmodified. "Fluctuations," he points out, "are linear, amplifying or lessening the existing qualities, but not really changing their nature. They are not observed to produce anything quite new, and evolution, of course, is not restricted to the increase of already existing peculiarities." Mutations, on the contrary, are characterized by throwing off new forms which are sharply different from the parents "by more than one character, often by slight differences in nearly all their organs and qualities," and which "are from the very beginning as perfect and constant, as narrowly defined, and as pure of type as might be expected of any species."<sup>17</sup>

"Mutations," he says in another place, "are going in all directions, producing something quite new every time."<sup>18</sup> The so-called *gigas*, for example, a variety of the evening primrose (*Oenothera Lamarckiana*), originates from the latter as a mutant type, that is, as a sudden deviation from the ordinary

<sup>17</sup> De Vries, *Species and Varieties*, p. 28.

<sup>18</sup> *Ibid.*, p. 717.

type without any intermediate steps being observed among its parents. The remarkable fact about this case is that the number of chromosomes in *gigas* is precisely double the number of chromosomes in the parental species: the ordinary evening primrose has fourteen chromosomes, but as soon as the mutation takes place the number of chromosomes is at once increased to twenty-eight. If we accept the current chromosome theory of heredity, we see at once that *all* characters, being doubled in the hereditary substance, must be equally involved in the change. De Vries, on a different basis, not using the genetic evidence at all, comes to the same conclusion.<sup>19</sup>

That biological species differ from each other not merely in one or a few individual characters but in a great number, perhaps in all points, is a fact that at present is hardly disputed by any biologist. Weismann, in spite of his violent opposition to the theory of mutations, supports and partially even explains this view. He says:

Even in the fully conscious and methodical selective breeding of particular characters, the breeder rarely alters only the one his attention is fixed on; generally quite a number of other characters alter apart from his intention as an inevitable accompaniment of the desired variation on which attention was riveted. . . . The variation of one part may influence the development of a second and a third organ, and may even not stop there, for very often the influence has penetrated much deeper and affected quite remote parts of the body. If any one were to succeed in adding a heavy pair of horns to a breed of hornless sheep, there would run parallel with the course of this variation, which was directly aimed at, a long series of secondary characters which would affect at least the whole of the anterior half of the body; the skull would become thicker and stronger to support the weight of the heavy horns; the neck tendon would have to become thicker to hold up the heavy head, and so forth.<sup>20</sup>

It appears from this classical illustration that the whole set of attributes constituting a living being are in a state of complete

<sup>19</sup> *Ibid.*, p. 553.

<sup>20</sup> Quoted in Henry Lanz, "Genus and Species," *Philosophical Review*, Vol. XXXIII, No. 5, p. 468.

interpenetration, and we cannot change one of those characters without touching upon the whole system of them.

#### RELATIVITY OF GENERIC CHARACTERS

All these facts are fully in accordance with the fundamentals of logical relativity. To realize the connection between these biological facts and the logical principles developed in the preceding paragraphs, one must take into consideration only that, with respect to the *genus* ( $abcd$ ), a *differentia* ( $mnop$ ) represents a specific system of logical co-ordinates relatively to which the group  $abcd$  is not an idea but a concept, just as "rational animal" is a concept, one of the innumerable logical definitions of "man." The formal identity of *genus* is the identity of an idea, not of a concept. But ideas are never given to us directly. They are represented by concepts. And as concepts they are changeable. Hence, the same genus  $A$  with respect to, say,  $ghki$  appears as  $abcd$ , and with respect to another frame of reference as  $a' b' c' d'$ . What constitutes "sameness" is not a group of identical attributes (which, as a matter of fact, are not to be found), but the necessity in transformation.

For similar reasons, however, the validity of which it is not difficult to ascertain, the specific difference, too, is subject to variation; so that both groups mutually determine each other. Both *genus* and *differentia*, as they appear within a species, are relative functions. Their relative value is species. It is precisely this relativity, and only it, that guarantees objectivity of both *genus* and *species*. Is it true that logical genera are arbitrary units which are in no way connected with the objective reality? As far as they are used in scientific practice, they are certainly not arbitrary. When we classify governments, are we at liberty to create any groups that might be possibly created on the basis of bare external similarity? Political science will most vigorously object to such a view. Governments, like biological species, are brought into definite groups because there is some-

thing in their nature and history that justifies the association. Again, in classifying the curves in geometry, we do not proceed arbitrarily. Think of the part played by the straight line in mechanics, by circles, ellipses, parabolas in astronomy, by zero in the whole mathematics—and you will convince yourself that our apparently artificial divisions have roots in reality, that they are abbreviations of relation-clusters actually existing in the natural order of things. To comprehend the nature of a biological genus in its dynamic relation to species we have to imagine it as existing in a four-dimensional perspective. We have to look, so to speak, through the branches of the famous genealogical tree, through the telescope as it were of living species, into the depths of another dimension which reveals the history of phyletic growth and development. Within the bounds of phyletic history, in the network of time, we may find genera and families designed upon the highroad of life as plans according to which myriads of individuals are formed and transformed. They can never be found within a single cross section, in the momentary pause of space. They are time-figures. They are not made of earth or space. They are moving entities of which time is substance—and not really entities, since they have no individual existence apart from the single organisms. Their mode of existence is revealed only in transformation. But they are real and objective to the extent to which transformation is necessary.

#### LOGICAL DETERMINANTS

Let us return to the nature of concepts. A concept, if defined, cannot be regarded as a single series of attributes. For in a definition the specific difference is not simply added to the genus but modifies all the constituent elements. Therefore the serial expression  $(x, y, z, \dots)$  is a very poor model for a concept. Definition renders every concept an at least two-dimensional group of elements. If we think of the totality of elements

constituting "animal" as a series ( $a, b, c, d, \dots$ ), we must think of "rationality" as giving a specific character to every one of them. Everything in a man is specifically human. Not merely has he a skull, but a unique skull; not merely does he propagate by sex, but he has a very distinct sexual organization; not merely does he possess a pair of front paws, but he is in possession of a very remarkable apparatus which we call hands and which are said to be more directly responsible for, or expressive of, his "rationality" than even his brain; etc. Now suppose we represent "skull" by  $a$ , "sex" by  $b$ , "front limbs" by  $c$ , etc. If one wishes to describe human nature, one will have to describe each of these elements as specifically human, i.e., as completely modified by "rationality." Every element in itself is a series by virtue of definition. The concept "rational animal," therefore, is a result of a logical co-operation of two series of elements. This can be easily symbolized by a square matrix similar to those by which mathematicians represent algebraic determinants:

$$RA = \begin{vmatrix} a_{11} & a_{12} & a_{13} & \dots & a_{1n} & \dots \\ a_{21} & a_{22} & a_{23} & \dots & a_{2n} & 0 & \dots & 0 \\ a_{31} & a_{32} & a_{33} & \dots & 000000 \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots \\ a_{n1} & a_{n2} & a_{n3} & \dots & 000000 \end{vmatrix}$$

This is a much more representative model of a concept  $RA$  than our traditional circles or single rows of letters. A concept is not a single row of attributes. It is two-dimensional. I certainly would not propose to introduce this model into the elementary textbooks on logic to illustrate the mechanism of syllogistic reasoning or the pitfalls of fallacies. It would be far too cumbersome. But I insist that this model describes the structure of concepts more adequately than our conventional schemes.

The model has another advantage. It can be written in a highly abbreviated form if we adopt the notation customary in

tensor analysis. A set of values  $a_{\kappa\lambda\mu\nu\dots}$  with  $n$  suffixes, each of which is allowed to take all numbers from 1 to  $m$ , is called a tensor of the  $n$ th rank. In particular  $a_{\mu\nu}$ , where  $\mu$  and  $\nu$  are allowed to take all values from 1 to  $n$ , stands for a set of  $n$  quantities constituting a tensor of the second rank. It is to be noticed that  $a_{\mu\nu}$  is not a single quantity; it is an abbreviated expression of an aggregate of quantities which can all be obtained in due order by first putting  $\mu = 1$  and associating it with all  $\nu$ ; then  $\mu = 2$ , and associating it with all  $\nu$ , and so forth. Proceeding in this manner we shall reconstruct the above matrix  $RA$ . Therefore we can briefly write:

$$RA = a_{\mu\nu}$$

This is our equation of "concept." We shall presently see that this formula is very useful and very convenient for describing the laws of logical transformation, and the structure of *ideas*.

AN ILLUSTRATION

Before proceeding any further I should like for the sake of clarity to introduce another illustration for which I am indebted to Professor G. F. Ferris of Stanford University. The class of insects designated by the entomologists as *Anoplura*, commonly known as lice, can be properly defined with respect to their structure as insects with incomplete metamorphosis, permanently wingless, with the segments of the thorax closely fused, the notum suppressed (the apparent notum being formed by the pleurites), the mouth parts suctorial, and the legs adapted to clinging to hairs. It is evident that the definition consists of a series of terms:  $a_1, a_2, a_3 \dots a_n, \dots$ . For the sake of the argument it is not required that the reader should understand every word in the definition. It will be much more to the point if he does not. For then he will feel the necessity of expanding every term constituting the definition into an explanatory (vertical) series. Hence *Anoplura* is symbolically reduced to the form:

$$A = \left\| \begin{array}{l} a_{11}, a_{12}, a_{13}, \dots a_{1n}, \dots \\ a_{21}, a_{22}, a_{23}, \dots a_{2n}, \dots \\ a_{31}, a_{32}, a_{33}, \dots a_{3n}, \dots \\ \dots \dots \dots \dots \dots \dots \dots \\ \dots \dots \dots \dots \dots \dots \dots \\ a_{n1}, a_{n2}, a_{n3}, \dots a_{nn}, \dots \end{array} \right\|$$

Here the first column ( $a_{11}, a_{21}, a_{31} \dots$ , or briefly  $a_{\mu 1}$ ) stands for "incomplete metamorphosis," the second column ( $a_{\mu 2}$ ) for the "absence of wings,"  $a_{\mu 3}$  for the morphological description of the thorax, etc. The whole definition,  $A = ia_{\mu\nu}$  (where  $i$  stands for the Kantian function), appears as a series of serial terms, as a two-dimensional matrix.

#### THE EQUATIONS OF TRANSFORMATION

The definition of *Anoplura* above was drawn from the systematist's point of view and is valid only with respect to structural relations. The formula,  $A = ia_{\mu\nu}$ , stands for a single equation, even though the right-hand side of the equation represents a collection of terms under the synthetic function,  $i$ . It is now required to construct a formula for transformation.

Suppose we are asked to describe *Anoplura* with respect to their style of life, i.e., from the point of view of their behavior. We shall say that they are insects which live upon the bodies of various mammals, sucking their blood and attaching their eggs to the hair of the host. The description, again, locates the insects very precisely as "pests" and may, from the behavioristic point of view, be regarded as equivalent to a definition. We can express it by writing:  $A = a'_{\alpha\beta}$ , where  $\alpha$  and  $\beta$  take all the values from 1 to  $m$ . Comparing this equation with the one that was obtained with respect to structure, and observing that the left-hand term,  $A$ , is identical in both, we have

$$a'_{\alpha\beta} = ia_{\mu\nu}$$

We interpret this equation as having the meaning that  $a$  is transformed into  $a'$  by means of  $\mu\nu$ . The equation defines an invariant which we call "idea."

#### A PSYCHOLOGICAL PROOF OF INVARIANCE

Kant believed that the expression, "gold is a yellow metal," is an analytic proposition; that is, its predicate is a conceptual repetition in a clear and distinct form of what is vaguely contained in the subject. Can the difference between "gold" and "yellow metal" be adequately described by reference to the degree of clearness? Psychologically, certainly not. When I hear the word "gold," what I primarily find in my consciousness is the image of some particular things, such as my watch or an American twenty-dollar piece, of which gold is the material. That it is "metal" is a chemical property which, in its specific meaning, is altogether too complex to be clear to the average person. Similarly, when I hear the word "man," what I am directly conscious of is the familiar figure of the two-legged creature that I see daily in the streets. Psychologically it is entirely irrelevant whether this image is an abstract notion or a composite portrait. It might for that matter be a mere symbol. What I am convinced I do *not* have in my mind is any reference to either rationality or animals. Those are not even vaguely or indistinctly contained in my daily notion of humanity. Of course, I immediately agree with the definition as soon as I hear it on the basis of my experience. But I will with equal readiness agree to many other definitions of "man." They are all true; and in this sense—since truth, according to the common notion, must have a source and be located somewhere—they are all contained in the subject. But it is fairly evident that such a localization is psychologically no more than a *façon de parler*. Moreover, when the average person thinks of humanity he is likely to exclude, rather than to include, animal characteristics. It requires a certain amount of bio-

logical training to think of "man" as a kind of animal, as a zoölogical species on a par with other members of the kingdom. As a matter of daily experience, "man" is incomparably richer in content and material than the "clear and distinct" concept of "rational animal."

Similarly, my notion of "gold" is much richer than the chemical concept of "yellow metal." "Gold" is to me a symbol of wealth. It is great economic power, a source of international jealousies. By means of skillfully selected specific differences it can very definitely be located with respect to such genera as "evil," "power," "value," "elements," etc. That it is "metal" is a comparatively small and decidedly confused item of my experience of gold. Therefore, psychologically the difference between "gold" and "yellow metal" should be described by reference to greater or less complexity rather than by such misleading categories as clearness and distinctness. I am not a chemist. But neither was Kant. And I am convinced that for both of us the symbol "gold" is much clearer and more distinct than the real scientific meaning of the word "metal."

The crucial point of my present argument is that "gold" and "man" are psychologically, i.e., in point of personal experience, more significant and eventful than the poor and pale definitions of their nature. The terms are depositories of experience. They denote something that can never be expressed by a single logical value, nor indeed by any amount of accumulated rationalistic cash. Even though they are depositories of experience, they should never be compared to a storeroom, not even to one of unlimited capacity. If there must be comparison, we should rather regard them as resembling a banking organization whose actual operations by far exceed any amount of cash at hand.

A characteristic feature of any such repository—think of "man" or "gold"—rests upon the peculiarities of its constitution, i.e., upon the way it is represented to us in experience.

Every banknote, to continue the comparison, represents the whole organization and not merely a certain amount of cash. The organization functions as a whole in every particular transaction of its board. Similarly, in every particular situation of my personal life in which "man" appears as an ingredient—the situation may be in the nature of a contact with, or judgment about, or conduct toward, a fellow man—the term is actually meant as an integral and not as an individual concept *as defined*. To be sure, if I am invited to a dance, even though it be given by a group of college professors, I do not expect to be dancing with either "featherless bipeds" or with "colonies of colloids," nor even with "rational animals," but plainly and simply with concrete representatives of the fair sex, that is, with human beings. Any definition, or even description, however full and scientific and immaculately correct, will positively ruin all my fun by changing my dancing partner into a ghost of logical pedantry. Hence, if I wish to maintain any sort of intelligible contact with my fellow men, I should not be, and I cannot be, logically precise as to what I mean by "fellow men," i.e., what sort of definition I give to these words. Because, whatever the definition, in my actions toward my fellow men, as well as in my thinking about them, I shall be immediately obliged to overstep the boundary line of any such definition, however perfect, and establish a relationship to something beyond.

This "beyond," however, is not to be conceived as a transcendent mystical quality. If it is at all within my reach, it must be somehow represented in my experience. There is no way of representing anything in my experience except by "representations," i.e., concepts, which are of necessity relative to the frame of reference employed at the moment. My "beyond," therefore, as far as I am concerned, must consist of other representations or concepts. That is, in maintaining my place in the world with respect to anything whatever, I am obliged to enter

into relationship with *representative groups* and not merely with individual concepts. Moreover, reference to groups constitutes the chief characteristic feature of our experience as experience. For individual concepts are not really experiences, but lifeless and senseless abstractions. They make sense only in so far as they are known to be members of a group. Without reference to groups we should be dancing with "featherless bipeds" and dining with "rational animals." Hence the first part of the required proof: Groups do actually occur in our experience and in our thinking as reference objects. It remains to show that such groups constitute units which possess the property of invariance.

Not every collection of individuals constitutes a group. Only those are regarded as constituting a group which are said in common language to define the same thing. But the thing is not given except by representations, i.e., through the members of the group. It is not the thing that defines the group but the group that determines the thing. Hence there must be something in the group that compels its members to stick together. In other words, there must be a reason for grouping. And this reason cannot be located in the "thing," because the "thing" is not there except as given, or represented, by the group. The group of concepts is the primary phenomenon which is directly known; and the thing is merely an assumption, the reason for which rests with the existence of the group. The thing is entirely secondary and, in a way, merely a *façon de parler*. It is largely a grammatical, not a logical, category.

The characteristic feature about the groups which are practically and logically valid is that their members are transformable into one another. We know that the transformations are not arbitrary. They are controlled by something beyond mere assumptions. Like physical vectors, or tensors, the concepts when transformed into a new co-ordinate system assume definite and strictly predetermined values. We are not free to

transform them *ad libitum*. If we do, we commit an error, and we have to pay for it often by very long periods of inconsistency and discrepancy among our ideas. This feeling of restraint, subordination, and control is what we experience as objectivity behind the concepts. We come to the old Parmenidian precept: reality is naught but necessity in thinking.

#### A LOGICAL PROOF OF INVARIANCE

Let us, now, consider a set of propositions defining "man." The defining concepts are admittedly different in every definition, each concept, if it is at all valid, contributing something to the integral view of humanity. Beginning with the child's notion of "man" as "one who has legs, and arms, and a face"—which is valid in so far as it is quite sufficient to identify the familiar figure that we see daily in the streets—the concept moves through a series of transformations. Since the conceptual material is different in each definition, it follows that the definition does not equalize the items thus transformed. "Characteristic figure" is "characteristic figure," and is not identically equated to "rational animal" (and that is probably what Antisthenes had in mind when he said that it is impossible to attribute any property to anything). The meaning of the definition  $M = RA$ , is not that the "characteristic figure with arms, legs, etc.," is "rational animal"; it could not be, because our "characteristic figure" is a concept with a very specific logical material into the composition of which only those properties are allowed to enter which make it precisely different from "animal"; for, as we know, everything in "man" is specifically human. William Jennings Bryan was right in refusing to identify the creature that he saw in the streets and in churches as an animal. Hence the meaning of the familiar scholastic definition is not that the "characteristic figure" itself is supposed to be "rational animal," but that something is indicated by that "characteristic figure," i.e., "man." But "rational animal"

also merely indicates "man" without, for similar reasons, being identical with it. Hence the transformation, as expressed in our daily judgment, presupposes that both concepts indicate the same situation which remains unaltered by the transformation. Without this assumption definitions have no significance. Concepts acquire significance, *objektive Geltung*, only with respect to prospective transformations.

I have briefly stated the principles of logical relativity. A number of problems in philosophy will appear in a new light from this point of view. Let me now briefly sketch the field of possible applications.

#### WHAT IS "FACT"?

In mathematics we are in a position to perform transformations by means of clearly defined mathematical symbols, the so-called equations of transformation. But, outside of mathematics, performing a transformation is not always in our power. For instance, we do not know how an electromagnetic wave is transformed into the sensation of light. The mechanism of transformation is in this case too complicated for us to follow. Yet nature does perform such transformations with the same precision with which it solves differential equations that far exceed the capacity of our methods of integration. Hence it very often happens that we have no idea as to how the transformation is carried out, but we are confronted with, and we know, the results. We call the results of natural transformation, when they are manifested in experience, "facts." Thousands of city-dwellers are passing in the streets at night; and they all see the glaring red light of innumerable signs. But very few of them realize that the red light is the final link in a chain of experimental evidence revealing the physical and chemical properties of certain gases. Only within that chain, constructed with superior and inflexible logic, red light acquires the significance of a "fact."

Physical things can be described as groups of quantitative measurements or, as the physicist puts it, as "bundles of pointer readings." The physicist is accustomed to treat philosophy with condescending familiarity. However brilliant and philosophically stimulating a physicist may be, he does not seem to believe that precision is a virtue of philosophy, and thus easily allows himself to be carried away by poetic comparisons. To be precise, physical things are not bundles, but *groups* in a more exact, mathematical sense than the word "bundle" poetically suggests. They share with mathematical "groups" the property of transformability. An isolated reading of any physical indicator has no scientific value, just as red signs have no scientific value for the people in the street. A pointer reading becomes a scientific "fact," not because it is mysteriously connected with some reality which it is said to "represent," but because it is rigorously connected with other pointer readings. A distance may be measured by the speedometer, or directly by a yardstick, or indirectly by the method of triangulation. The crucial point is that the indices on the speedometer must correspond to the mileage; the distance of  $x$  miles by direct measurement must correspond to, say,  $x'$  inches on the speedometer. The readings  $x$  and  $x'$  are not independent values. If one is given, the other is uniquely determined. The determinism in transformation constitutes the objective reference of the indices involved.

Now we are prepared to establish a rigorous definition of "fact": If a pointer reading (or any *sense* datum, for that matter) defined within a given set of circumstances can be so translated into another set of circumstances that it becomes uniquely determined in the new set, such a datum is said to be a "fact." A colorless bubble,  $a$ , in the test tube, if subjected to a specific treatment, gives a characteristic spectrum, i.e., becomes  $a'$ . The number  $x'$  on the speedometer, if translated into mileage, becomes another number,  $x$ , of miles. If  $x$  is not uniquely deter-

mined, i.e., if the same reading of the speedometer registered  $x$  miles today and  $y$  miles yesterday, we say that our speedometer is out of order. And if all speedometers suddenly commenced to behave in the same irregular manner, there would be no speedometers. The same holds true with regard to any scientific, and even nonscientific, observation, as long as it claims to be an observation and not just an impression.

Thus the ancient controversy of positivism *versus* realism comes to a peaceful solution. In a sense, all we know, i.e., all we are directly aware of, is our own state of mind, such as the revolving of the speedometer, the orange-red line in the spectroscope, etc. But those experiences are not absolute occurrences. They strike us differently and reveal entirely different structures if projected upon different frames: the same lump of white substance, for example, which leaves a salty taste *in the mouth*, produces a yellow line *in the spectroscope*. When the circumstances are given, we have no command over the transformation. It proceeds according to its own laws. We cannot arbitrarily define, invent, or cause the transformation. We are compelled to accept it as it is. Hence precisely within the realm of our direct sensations and impressions we are constantly aware of a factor which it is not in our power to change and which does not directly belong to the texture of the sensation itself. This factor we call "reality," or "nature," or "essence," according to the type of philosophical school through which we have gone. But, whatever its name, its function in the system of knowledge is clear and unmistakable—it is the locus of points where our mind directly meets the world-conditions. This locus is the realm of empirical facts plus their transformations.

#### NUMBERS

A further illustration of objectivity obtained by transformation can be derived from numbers. The well-known definition of "number" as a "class of classes" is in the last end. I think.

based upon the notion of transformation. For, logically speaking, one-to-one correspondence is a special case of transformation by which the terms of a given set are what we call "counted," i.e., identified with the terms of any other equivalent set. In its abstract aspect the subject is a difficult one. Let us therefore appeal first to a geometrical substitute, not exactly to prove anything, but to make an argument which otherwise is quite abstract a little more intelligible.

Consider the seven stars of Ursa Major forming the familiar configuration of a big dipper. By continuous motion those seven points can be imagined as transformed into innumerable other configurations. They can be moved so as to form the constellation of Orion (at least in its main outlines); they can be condensed to the size of Ursa Minor, or even to the size of the seven visible Pleiades. But they can never be made to form the constellation of Scorpion, for instance. For no matter how we shall move our stars, they will never suffice to fill all the holes in the Scorpion. Thus the group of stars—or points—constituting the constellation of the Big Dipper *can* do certain things on paper, or in our imagination, and they *cannot* do innumerable other things which are nevertheless perfectly easy to perform with other groups. Roughly speaking, then, the things that the stars of the Big Dipper *can* do on paper, or in space, we call "seven." Hence "seven," or any "number" for that matter, is not a single something, an image, a configuration, or what not, but a method, a way by which certain collections are transformable into one another.

From the empirical point of view there is nothing in our experience except the innumerable concrete collections which are said to contain seven objects, the number "seven" being nothing but a name, a symbol attached to those collections to express their equivalence. Such is the empirical, or nominalistic solution of the difficulty. "Seven" is a class of classes, that is, the class of all those groups, or classes, which contain a num-

ber of objects equivalent to the number of stars in the Big Dipper. "Seven," in this sense, is an infinite class of such collections. In this empirical interpretation we start with concrete groups of seven objects and arrive by the process of co-ordination or transformation at an abstract symbol called "seven."

To this interpretation the advocates of apriori object by saying that you cannot have a concrete collection of seven objects without having the idea of "seven" already presupposed. And they are, I think, right, but not in the sense in which they usually believe that they are right. The idea of "seven" is there but not in the sense of a single notion, or vision, in which all the concrete groups, such as, Ursa Major, and Ursa Minor, and Orion, and "seven planets," and "seven heavens" all partake. The idea is there in the sense that the transformations from group to group are not arbitrary operations but are under the control of an objective factor which remains invariant for all those groups—precisely what makes them into groups of "seven." For, I suppose, even the empiricist, who is determined to construct his logic and his mathematics upon extension only, discarding intension as vague and unscientific, will probably agree that those concrete groups of seven objects which in their entirety constitute the number "seven" are not wholly disconnected numerical facts which only by a sort of pre-established harmony fit into each other's pattern. He will, no doubt, scorn the suggestion that they are connected by the idea of "sevenness" which would be a common factor in all groups. But nobody invites him to believe that. We only ask him if he would not agree that the infinite set, say, of pairs, or sevens, in the entire universe *are* connected among themselves, just by being pairs and sevens, that is, by the possibility of one-to-one correlation. And this possibility, or nature, or idea, is not a consequence or an attribute of each individual pair but is obviously inter-diadic, so to speak, i.e., above and beyond the individual pairs, or sevens. What is prior—the concrete sevens or

the number "seven," the individual pairs or the number "two"—is an idle question. For these have no meaning apart from one another.

There is something, not in our mind, but in every concrete group of "two" objects which makes it in a very precise sense conformable, or equivalent, to any other such group, something that the group itself *can* do in a way of transformation. Hence in every group of that kind (and that is precisely what makes it "of that kind") a certain "can" and "cannot" are manifested. In this sense, one may say, using the phraseology of the old metaphysical schools, every number is a "possibility," a δύναμις. The old terminology was not altogether absurd, and not entirely irreconcilable with our advanced scientific vocabulary. The modern physicist, or even logician, would be, no doubt, satisfied to hear that number is an "operation." Well, "operation" is something that can be done, is it not? The fact that one pair can be uniquely correlated to another pair constitutes its duality. And the number "two" itself is nothing else but the matrix of all such "operations," which are all in the nature of transformation.

#### WORDS

Similarly "words," in what they "mean," are to be regarded as matrices, not as individual objects. Their objectivity rests, again, with the fact that they are transformable; and their transformation is *not* an arbitrary affair. Linguistic manifestations of "vision," for instance, are very numerous. "Vision," "evidence," "history," "idea," "idolatry"—all come from the same root, *vid*. The meaning of each of these words obtains from the particular circumstances in which the root is placed, together with sufficient necessity. There might be some subjective variations and arbitrary interpretations, but they are linguistically immaterial and transient. The preposition "ex" and the suffix "-ence" (which in itself is a very subtle mechanism of

transformation) provide a frame of reference with respect to which the root *vid-* automatically becomes "evidence." It is not a matter of arbitrary definition; its meaning is not invented; it is found and discovered, in the same sense in which facts are found and discovered.

What is, then, the meaning of *vid*? It would be futile to define it by a single proposition. It is *variously* defined by each and all those words which are its legitimate linguistic derivations. Each derivation is a logical re-definition. In this sense, each root is a matrix of transformations. But each *word* is also a matrix of transformations. For the meanings of words are *derived*, not from definitions, but from actual phrases and sentences which constitute the frames upon which the words are projected and from which they arise, like Phoenix, each time with a new life. Language is not a substance, but a form.

The conventional way of explaining the function of words by reference to "association" begins to lose credence among the philologists. Especially, again, the phenomenological school in Germany contributed much to the discredit of the traditional doctrine according to which, when we hear the same word, we associate with it the same mental picture and react accordingly. In the vast majority of cases, "mental pictures" do not exist at all. Like the famous canals on Mars they are pure figments of theoretical imagination. In case of a "tree" or a "cat" we may have a picture in our mind when we hear the words uttered. But in the vast majority of cases we have no pictures, and we cannot possibly have them, because the meaning does not yield to picturization. What sort of a picture does one have in mind when one hears such words as "except," "soon," "mine," "yours"? The meaning of such words can only be obtained from concrete sentences, and *is* nothing else but a repertory of all those sentences, both actual and possible. It is, therefore, indeed true that words are but signals of signals of reality, i.e., twice removed from reality: idea—concept—word.

## THE NOTION OF "RESEMBLANCE"

In the paragraph dealing with vectors and tensors it has been pointed out that neither vectors nor tensors can be said to resemble their numerical components. For in every co-ordinate system those components are *entirely* different. The same holds true with regard to ideas. Ideas do not in the least resemble the concepts through which we are familiar with them. Allow me an extensive quotation from Sir Arthur Eddington's *Mathematical Theory of Relativity* (p. 2), which, I think, settles the problem once and for all:

The parallax of a star is found by a well-known series of operations and calculations; the distance across the room is found by operations with tape-measure. Both parallax and distance are quantities manufactured by our operations; but for some reason we do not expect parallax to appear as a distinct element in the true picture of nature in the same way that distance does. Or again, instead of cutting short the astronomical calculations when we reach the parallax, we might go on to take the cube of the result, and obtain another manufactured quantity, a "cubic parallax." For some obscure reason we expect to see distance appearing plainly as a gulf in the true world-picture; parallax does not appear directly, though it can be exhibited as an angle by a comparatively simple construction; and cubic parallax is not in the picture at all. The physicist would say that he finds a length, and manufactures a cubic parallax; but it is only because he has inherited a preconceived theory of the world that he makes the distinction. We shall venture to challenge the distinction. Distance, parallax, cubic parallax have the same kind of potential existence even when the operations of measurement are not actually made . . . . Any one of the three is an indication to us of some existing condition or relation in the world outside—a condition not created by our operations. But there seems no reason to conclude that this world condition resembles distance more closely than it resembles parallax or cubic parallax. Indeed any notion of resemblance between physical quantities and the world-conditions underlying them seems too inappropriate.

Similarly, the colorless vacuum in the test tube does no more closely resemble "neon" than does the system of orange-red lines in the spectrum; nor does the equation of a parabola

in polar co-ordinates more closely resemble the curve itself than its equation in rectangular co-ordinates. We usually think that if we look at a picture of a circle at an angle we obtain a distorted impression of its real form. But, as a matter of fact, the straightforward impression of the circle does not resemble the "real" circle any more than the oblique one. Both are equally "true" projections of the geometrical relations called circle upon different frames of reference.

It has been repeatedly pointed out by various philosophic writers that the notion of "resemblance" between ideas and realities originates from the assumption that reality has a visual character, that it can be "seen." Nothing illustrates the fallacy of this assumption more forcibly than the physical theory of relativity. One may expect to "see" an atom, an electron, perhaps. But it is quite evident that neither tensors, nor invariants, nor even vectors for that matter, can ever be "seen" or "observed." If one expects to "see" a tensor or to "hear" an invariant, he simply does not understand what he is talking about. Those are not of the order of visual relations. They are not single individual things. They are groups of transformations. To see a tensor would imply the capacity, not merely to see its components, which would at least be intelligible, but also to see an infinite, or rather indefinite, multitude of all possible transformations of those components into all possible co-ordinate systems. For that is what a tensor is—a totality of transformations. It can never be seen, because there is nothing to be seen.

True is the ancient saying of Parmenides that reality can be thought but never sensed. In the light of the theory of relativity this slogan acquires a new significance. Reality can only be thought, not because it is revealed to us only by apriori constructions without any reference to sense-experience—this was an aberration of rationalism—but simply because, like vectors and tensors, it is a matter of transformation and logical inte-

gration, which are not sensory operations. Continued opposition to the Parmenidian principle in epistemology is based on a confusion. It is believed that the principle implies disregard of experience and a complete reliance upon "pure reason." In other words the opposition is methodological, and in so far it is fully justified. But the popular scientific epistemology goes too far in its eulogy of the senses. It is often believed, and still more frequently tacitly implied, that thought is a mere reflex of sensory experience and is not in a position to contribute anything new, anything of original value to the body of knowledge. It is implied, and sometimes explicitly stated, that "thought," a term indiscriminately employed for both "concepts" and "ideas," is nothing but a faint copy of experience. This would mean—to return to our original illustration with tensors and vectors—that a tensor, which is indubitably a "thought," is a "faint copy" of its own components. If that is the meaning of empiricism, then empiricism is a meaningless jumble of words.

No particular expression of a tensor<sup>21</sup> with respect to a given co-ordinate system can be said to resemble the tensor more closely than any other expression, or to resemble it at all. In the equation of transformation neither the left nor the right side of the expression can be said to be a "semblance," or "picture," or "copy," of the tensor;  $g_{\mu\nu}$  just as well as  $g_{ij}$  is the tensor itself, the whole tensor, in so far as it is transformed into the co-ordinates-system,  $x'_1, x'_2, x'_3$ ; any  $g$  is the whole tensor relatively conceived. Similarly, "rational animal" is the whole "man," we say: it defines "man" with respect to a certain group of biological co-ordinates. The relation of "resemblance" in this context means nothing. With regard to thinking processes it has no descriptive value whatsoever.<sup>22</sup>

<sup>21</sup> The reader who is not familiar with tensor analysis may without much loss of generality substitute the word "vector" for "tensor." The argument will hold its force.

<sup>22</sup> This is expressed in the Christian dogma of "homoousia" ("God and His Word are one"), as opposed to the rationalistic notion of "homoiousia" ("God and His Word are merely similar"). The reader will realize that  $i$  in that famous controversy is essential, indicating and anticipating the two types of future epistemologies.

## THE PROBLEM OF "TRANSCENDENCE"

The principles of logical relativity throw a good deal of light upon the problem of "transcendence." If the relation of resemblance does not describe the nature of knowledge, if the concept does not resemble the reality it conceives, what is the connection between them? Is reality "outside" or "inside" the concept?

In my opinion, the relation between concept and reality has been best described by Plato as "participation." Our concepts do not "resemble," do not "imitate" reality; they actually and directly participate, and allow us to participate, in the life of reality. Reality is not a solid and immutable substance. But it is not a continuous flow or change either. It has no definite "what" except relatively to a given frame of reference. But, relatively defined, every item of reality has innumerable what's. Some of those definitions, or concepts, may fall within the range of consciousness. Others—and these are, no doubt, in the majority—are transformations with respect to such contexts which are unknown, or even wholly unimaginable to us.

Reality, i.e., idea, is always transcendent. For it stands for the totality of transformations which is "meant" or "held in view," yet never directly experienced, by consciousness. But certain portions of that totality can be directly experienced by conscious beings. They are exactly on a par with other portions of the same totality which are not, temporarily or ever, experienced by men. Those will be, temporarily or ever, trans-objective. But there is no difference in principle between the two. The trans-objective residuum is not to be conceived as an original archetype according to which the subjective concepts must be formed and transformed or to which they must correspond in order to be true. Nor are the subjective portions "copies" or "images" of the trans-objective residuum. The subjective concept is just as much reality itself as its trans-objective counterpart on the "outside." Both are *variants* belonging to the same

group. Reality (idea) is present in every one of its concepts fully and completely, just as a vector is fully and completely given by its three components. Every concept is a relative manifestation—a variant, not a copy—of reality within its own frame. In this sense, and only in this sense, reality is wholly immanent. On the other hand, no concept, being a relative manifestation of an idea, is an adequate expression of the reality. It is always transformable into innumerable other frames. The idea is never reached but only—perhaps—touched by a concept in one of its points. In this sense ideas are wholly transcendent.

Thus the terms “transcendent” and “immanent” lose much of their poignant romance of hostility. They peacefully turn out to be two versions of the same story, or, more precisely, two variants of the same idea or reality of “knowledge.” To discover the identity of the story behind the diversity of historical settings was the achievement of mysticism. There is a mystical factor (of immediacy) in every knowledge, even in the scientific knowledge of empirical facts and statistical tables; and science ought not to be ashamed of it. Knowledge is alienation and direct participation in the object known. In Campanell’s immortal phrase: “scire est alienari et perdere proprium esse et acquirere alienum; ergo non est scire res, prout sunt, sed fieri res et alienatio.”

#### THE PROBLEM OF “ESSENCE”

The logic of relativity helps to understand the classical concept of “essence.” According to the classical view, essence manifests itself in every one of its appearances always as a whole. This is one of the standing paradoxes of philosophy which can never be solved as long as one remains within the limits of the Aristotelian logic of concepts. Essence is an “idea,” and must be approached from the point of view of the logic of matrices. Let us consider some historical concepts of “essence,” and see

how simple they become in the light of the logic of relativity—they lose much of their mystical vagueness.

The crucial and yet paradoxical point is that in every “appearance” the “essence” is somehow present, not partially but as a whole. Broken up in relative manifestations it manages to survive as a complete and unbroken unity, at every moment retaining an absolute control over the entire field of its fundamentally discontinuous appearances. This would be entirely impossible had “essence” been conceived as a single unity concentrated in one metaphysical point. But if it is conceived as a matrix of its own transformations, the paradox evaporates. Is not a vector completely expressed by its three components? Certainly—within a given frame of reference! The letters  $x$ ,  $y$ ,  $z$  stand, of course, for the whole vector, and not for a part of it.

Furthermore, according to the classical doctrine, essence does not produce its manifestations as a physical force produces work. If it is at all comparable to force, it must be somehow interpreted as a nonmechanical agency (*ἀμήχανος*).<sup>23</sup> This, again, may seem strange and inconsistent. But is the relation by which “vector” is connected with its own components a mechanical, or causal, relation? The components do not emanate from the vector as energy emanates from the stars! Nor does the vector result from its components as  $H_2O$  results from H and O. And yet it is not identical with its components; for the components change relatively to the system of co-ordinates chosen.

This, however, is a purely negative determination. What does it imply affirmatively? What descriptive properties does the relation possess to comply with its a-mechanical nature? Plotinus offers an answer. The relation between essence and its various manifestations is by him described as *ἐπιστροφή*, a word which it is difficult to translate. Philologically it is derived

<sup>23</sup> Plotinus, *Enneades*, v. 3, 6.

from ἐπι, a preposition to denote "being upon" or "being supported upon a surface," and στρέφω, a verb denoting "to turn aside," "to divert," "to circle." The combination of the two, then, seems to indicate a state of being diverted, or reflected upon a surface, a "projection." Thus being, like vectors or tensors, variously "projected," the essence acquires different appearances, and is therefore an "abundance" (κόρος) and a "multitude" (πλῆθος). But it is a rare kind of multitude, sustained by a unity, "together one and many." In this paradoxical juxtaposition of one and many I am tempted to perceive the first glimmering of the idea of "logical groups": essence is a group of transformations or—in metaphysical terminology—a totality of manifestations. And it is precisely in its quantitative aspect, as totality, that it resists mechanistic interpretation. Numbers and transformations are not machines.

Some very remarkable properties have been historically derived from the definition of essence as "projection." It is easily seen that the projected entity does not exhaust itself in any number of projections. It is infinite. Moreover it is not identical with any number of its projections; it is "nothing of all" and yet it is "all in all," because every particular projection is an expression of the same essence, or of the same "law" that permeates all cases. It is the dynamic principle that sustains all variations (δύναμις τῶν πάντων). Nothing appears in the "projection" which does not exist or subsist in the essence. It is, therefore, as Nicholas of Cusa expressed it, "*omnia in omnibus et nihil de omnibus*." The whole system of pantheism and negative theology can be deduced from this formula. Spinoza is a mere corollary to it.

Essence cannot be added to the whole set of its own manifestations as an extra unit. It is not a thing alongside other things, not an entity among entities. It is for this reason that the metaphysical reduplication of nature into two worlds, real and ideal, is untenable. Nature is one. There is no mystical

counterpart of it in some "higher regions" or "behind the curtains." If we wished to symbolize the relation mathematically, we should commit an obvious error and reveal a complete misunderstanding of the problem were we to represent essence and appearance in the form of  $a + b$ . It would be more correct to think of it as  $a + ib$ . The relation is in the nature of a complex number. This is a source of innumerable paradoxes all of which have been summed up in Hegel's formula for *Reflexion* (= neo-Platonic ἐπιστροφῆ):

Sie ist Setzen, insofern sie die Unmittelbarkeit als ein Rückkehren ist; es ist nämlich nicht ein Anderes vorhanden, weder ein solches, aus dem sie, noch in das sie zurückkehrte; sie ist also nur als Rückkehren oder als das Negative ihrer selbst.<sup>24</sup>

Much has been contributed to the elucidation of the relation between essence and appearance by the Fathers of the Church. Their vocabulary is far removed from our present terminology; but their problem is the same. Much of what they teach about the Trinity belongs to the theory of relations, and much of what they say about God belongs to the theory of ideas. In a large majority of texts one can safely substitute the words "idea and concept" for the words "Father and Son" and obtain a meaningful proposition about, and often a new insight into, the nature of the relation between ideas and concepts or between essence and appearance. As the idea of ideas, as the highest idea, the Father reveals Himself in the "concept" (λόγος); but even in His revelation He is both Word and Ineffable Unity or "silence" (σιγή), absolute "clearness" of logical expression in His "concept" and absolute "hiddenness" of mystical ineffability in His "essence" or "idea." The Gnostics presented the relation in mythological form. They personified manifestation or *logos* (utterance, *yttring*) as Sophia, and the ineffable essence as Bathos. The source of Sophia's tormented

<sup>24</sup> Hegel, *Wissenschaft der Logik*, II, 1, 1; C. 1.

heart is her love for the "silent Bathos." She wants to embrace Bathos, but Silence resists the union; for, as Valentine explains, Batho-Sige is ineffable, and the language of the spirit is mute: what can be revealed is based upon what is ineffable, what can be conceived has its roots in the inconceivable. In other words, the logical concept (λόγος) has meaning only in its relation to the meta-logical idea (βάθος). According to Irenaeus, "the Son is the measure of the Father, as He conceives the Father."<sup>25</sup> As the physical quantity is a measure of the world-condition, as every concept is, in a far wider sense, a measure, i.e., a manifestation, of the idea, so the Son is called the measure of the Father. That is, a manifestation of what can never be fully manifested, a definition of what can never be rigorously defined: "the Father is the invisible of the Son; Son is the visible of the Father."<sup>26</sup> This relation is the fundamental secret of Being—a mystery, a miracle, something that happens no one knows how: "If you ask me: in which manner is the Son sent by the Father?—I shall reply that no one knows the manner of this mission, of this genesis, or revelation, or definition, or whatever we shall call His ineffable birth." The relation seems "ineffable" because it cannot be conceived according to any worldly, sensuous, or "carnal" scheme. And yet for centuries it remains in the center of philosophical attention. Scores of keen and sincere speakers of truth endeavor to describe it to the best of their speculative abilities.

Tertullian, the first in the long list of names, clearly perceives that essence differs from its own manifestations, not in number (they are not *two* things), but only in the mode of existence. It is a paradoxical kind of distinction by which, as

<sup>25</sup> Compare Clement of Alexandria, *Exhortation to the Greeks*, p. 157, where God is defined as "the measure of the truth of all existence."

<sup>26</sup> This manifestation—Irenaeus calls it "prophecy"—is carried out in a number of ways: "For the prophets used not to prophesy in word alone, but in visions also, and in their mode of life, and in the actions which they performed . . . . After this *invisible manner*, therefore, did they *see God*."—*Against Heresies*, Bk. IV, chap. 20.

Hegel puts it, nothing is distinguished (*ein Unterscheiden, wodurch nichts unterschieden wird*):

“Ita et quod de Deo profectus est, Deus est, et Dei Filius, et unus ambo; ita et de deo Deus modulo alterum, non numero, gradu non statu fecit, et a matrice non recessit, sed excessit.”<sup>12</sup>

Tertullian’s favorite analogy is the sun as the source of energy, and light as the expression or manifestation of its energy. Often the relation is compared to that between the root of a plant and its growing stem or between the fountain and the flowing stream.<sup>28</sup> The comparison is not so poor as it may seem. Tertullian, it must be noted, does not compare the relation between essence and appearance to that between “root” (*radix*) and “fruit” (*fructus*), but to that between “root” and “growing stem” (*frutex*), or rather the “growth” of the plant; nor to that between the “fountain” and the “stream,” but to that between the “fountain” and its “flow.” The distinction may appear to be in the nature of scholastic hair-splitting; but for him, and for many generations of theologians after him, it was a most important one. The “river” is different from its “source” or “fountain” as another thing, as a geometrically and *really* distinct entity. But the “flow” of the river is, in a sense, identical with its “source.” Similarly “essence” is different but not *really* distinct from its appearance. Both are one, and each is intrinsically identical with its dialectical companion: *ambo unus et utrumque alter*.<sup>29</sup> The relation is so different from that which exists between “things,” and so paradoxical from the “carnal” point of view, that it naturally seems to exceed rational comprehension. And in the ecstasy of comprehending the truth of the paradox Tertullian coins his famous adage: “*credo quia absurdum*.”<sup>30</sup>

<sup>27</sup> Tertullianus (Migne), *Apologeticus adversus gentes*, p. 457.

<sup>28</sup> Tertullianus, *Libri adversus Praxeam*, I, 186–87.

<sup>29</sup> *Ibid.*, p. 188; cf. pp. 194, 210.

<sup>30</sup> Tertullianus, *De carne Christi*, chap. 5.

Let us briefly recapitulate the descriptive properties of "essence." (1) Essence is a nonmechanical category. (2) It nevertheless has a quantitative aspect and has been often described as "abundance," "multitude," and "totality." (3) Its relation to quantity, however, is not of the order of arithmetical relations. Essence is a matrix, not an individual number: "*Nihil tamen a matrice alienatur, a qua proprietates suas ducit.*"<sup>81</sup> (4) It is a matrix of its own manifestations. (5) It is infinite, in the sense that it is indefinitely transformable ("*sicut multae figurae sigilli expressae archetypum sigillum participant, et in unaquaque figura sigilli expressa totum*"). (6) Within the matrix of its own modifications it is "*omnia in omnibus et nihil de omnibus.*" (7) It is manifested as a totality in every one of its manifestations, in every variant, without actually or really being a part of it. (8) It is different from its manifestations, without being distinct from them.

All these characteristics are applicable to "ideas." It is therefore fair to regard the concept of "idea" itself as one of the historical variants of the concept of "essence." The advantage of this variant lies not so much in its intrinsic excellence—it is in no way better or truer than other variants—but in its direct association with modern science. Ideas are logical vectors. Historically therefore there is nothing paradoxical in asking Einstein to join the company of the Church Fathers. In inviting him to join so strange a company I am not guided by any sentimental desire "to save religion." I frankly confess that the interests of the Church are entirely foreign to me. The invitation is extended exclusively in the interests of truth, and, under the existing conditions of hostility between science and philosophy, will no doubt be rejected.

<sup>81</sup> Hence the Herbartian formula: *wie viel Schein so viel Hindeutung aufs Sein.* —*Allgemeine Metaphysik*, Vol. II, p. 70 (§ 199). It is important to remember that Herbart considered his own metaphysics as a reconstruction of Leibniz'.

## RELATIVITY AND DIALECTICS

The dialectical method in philosophy also becomes much more intelligible, and much less paradoxical, if viewed in the light of the logic of relativity.

There is scarcely anything that provokes the scorn of the modern scientist more profoundly than a mere mention of Hegelian dialectics. There is something in the dialectical procedure that offends common sense and is repugnant to those scientifically and mathematically minded; their sound, realistic minds, accustomed to deal with "clear and distinct" concepts, are perpetually irritated by what seems to them a meaningless jumble of words. The stumbling block is the dialectical treatment of the law of contradiction.

Denn ein vollkommener Widerspruch  
Bleibt gleich geheimnisvoll für Kluge wie für Toren.  
Mein Freund, die Kunst ist alt und neu.  
Es war die Art zu allen Zeiten,  
Durch drei und eins, und eins und drei  
Irrtum statt Wahrheit zu verbreiten.  
So schwatzt und lehrt man ungestört;  
Wer will sich mit den Narrn befassen?  
Gewöhnlich glaubt der Mensch, wenn er nur Worte hört,  
Es müsse sich dabei doch auch was denken lassen.

Thus speaks Mephisto in preparing a rejuvenating drink for Faust; thus think all realists preparing their clear and distinct concepts for popular consumption. To appreciate and properly to understand Hegel it is essential to realize that dialectical philosophy is primarily concerned with ideas, not concepts. And ideas do contain contradictions; it is impossible to eliminate contradiction from them. But such elimination would also be entirely needless, for contradiction causes them no harm.

The realist does not seem to realize that "to contain contradiction" is not the same as "to be contradictory." If we

agree to regard ideas as *groups* of concepts transformable into one another, it will be easily seen that as groups they may very well contain contradictory concepts without being themselves contradictory. Indeed, 1 cannot be  $-1$  at the same time and with respect to the same system of co-ordinates; if added they will result in 0. But in a group, i.e., within a matrix, they may coexist without causing any harm to one another. We can very well imagine a point in a plane with the co-ordinates 1 and  $-1$ , which then constitute a matrix (1,  $-1$ ). We construct this matrix, not with the purpose of adding the two numbers, but with the purpose of locating the point. Similarly, within a group of concepts, such as "rational animal," "featherless biped," and "son of God," the individual concepts may have contradictory attributes, but the whole group does not therefore become contradictory.

Every particular definition, every "concept" *as stated* within a given frame of reference, is "true," but true *only* with respect to that particular frame. In this "only" lies its own self-annihilation. It is valid only as a member of a group, i.e., as a phase, or "variant," of an idea. In so far as it is valid, it points beyond its own self; and only in that "beyond" is it really what it is, not in itself. The "true self" of an object is in the nature of a tensor which, in its totality, is *inherently beyond* its own components taken with respect to any co-ordinate system whatsoever. Within, this "true self" contradiction is not only possible but unavoidable. For suppose we discover that what we call "man"—let us denote it by the letter  $a$ —displays in one line of thinking a certain set of characteristic elements; and suppose we find out that within another line of thinking, i.e., in a different context, the same  $a$  with equal necessity reveals opposite elements. This can very well be, because within our  $a$ , which is a *group*, there are several  $a_{\mu\nu}$ . This has been definitely stated by Herbart. He writes: "The contradiction cannot possibly be eliminated within a particular  $M$ , as a particular.

It is, therefore, necessary to assume that its solution lies in a collection of *M*'s."<sup>32</sup>

Thus concepts, definitions, including all that is "clear and distinct," are merely a surface. In the mechanism of thinking, the "medium," the great "beyond," the "emptiness" which surrounds the concepts is far more important and significant. For it is from the background of ideas that the concepts, and objects, arise. And ideas are known to us precisely to the extent to which concepts are overstepped. Truth lies not in what we see and say "clearly and distinctly" but in what we miss and fail to say. For truth rests with ideas. And ideas can never be "clearly and distinctly" formulated by a single definition. Every idea requires a number, a set of definitions, or descriptions, to afford even a glimpse of it. "That which we keep back," says Emerson, "this reveals."

<sup>32</sup> Herbart, *Allgemeine Metaphysik*, S. 8 (Ges. W.); see also pp. 73-74.

### III. *The Ethics of Relativity*

“Der Grenzgott der Moral weicht nicht dem Jupiter, dem Grenzgott der Gewalt; denn dieser steht noch unter dem Schicksal.”

IMMANUEL KANT

#### THE STATEMENT OF THE PROBLEM



THE PROBLEM with which we shall be chiefly concerned in the second part of this inquiry is briefly this: Does the concept of objectivity, roughly outlined on the preceding pages, apply to values, and more precisely to moral values? In no other field of knowledge is its application so badly needed as in the domain of values, in ethics. For, as a rule, objectivity is denied to values even by those who, like Hume, are reluctantly tolerant with regard to the objectivity of truth. Hume's attitude has become almost a creed among those who believe themselves to be empirically or "scientifically" minded. In the vast majority of cases they are not even aware of the influence. Hume writes (II, 185):

In the operation of reasoning, the mind does nothing but run over its objects, as they are supposed to stand in reality, without adding anything to them, or diminishing anything from them . . . . Though all the human race should for ever conclude that the sun moves, and the earth remains at rest, the sun stirs not an inch from his place for all these reasonings, . . . . nor is truth or falsehood variable by the various apprehensions of mankind . . . . But the case is not the same with the qualities of desirable and odious, as with truth and falsehood. In the former case the mind is not content with merely surveying its objects, *as they stand in themselves*: It also feels a sentiment of delight or uneasiness, approbation or blame; and this sentiment determines it to affix the epithet of desirable or odious.

Thus, we are told, it is the sentiment, a purely subjective factor,

which determines values. Ethical values present no exception. The phenomenon of freedom and responsibility does not compel Hume to abandon, or even to modify, his subjectivistic position, and only gives him an opportunity, as it has been justly pointed out, to obscure the issue by introducing as much of the "old dust" as he desired ("soviel alten Staub, als er wollte, aufwirbeln").

On the other hand, the absolutists, following Kant, eagerly arm themselves against the gospels of relativism and in the passion of polemics become entirely and deliberately oblivious of "circumstances," declaring values to be absolutely constant and immutable. In view of this unending controversy it may be helpful to realize that values, like ideas, are neither mutable nor immutable entities. For they cannot be envisioned as single entities at all. They are groups of transformations, and are revealed to us only in the process of transvaluation, i.e., axiological transformation.

The simplest case of axiological transformation may be seen in satisfying a desire. Satisfaction is a transformation by which an emotional striving, which, under circumstances, may be very strenuous, prolonged, and painful, is changed into a pleasurable feeling of gratification. Thus pain, or at least some form of unrest and irritation, associated with desire, is transformed into a form of pleasure. The situation is analogous to the transformation of an electromagnetic wave into the sensation of "red" by the mechanism of the eye. Presumably the same thing which in the state of desire is conceived as an "end," accompanied by more or less strenuous and partly even disagreeable ingredients of striving, appears in the state of fulfillment as pleasure. The desire alone taken apart from satisfaction could never guarantee the objectivity of its own object, could not even raise the question of objective reference. On the other hand, the satisfaction alone, taken apart from previous desire and in a state of blissful isolation from it, could never

be objective. It is the transformation of one into the other that first suggests objectivity. And it is at this point that the problem of value comes into existence. We say that we feel satisfaction when the thing that we desired is actually given to us; we acquiesce—*quietatio appetitus in bono*. In a situation of that kind the “thing” is called “value.” The phrase, “it is actually given to us,” is very unprecise and quite misleading. For, how do we know that we are satisfied exactly by the same thing that we desired? The question may seem one of those philosophical profundities deliberately designed to obscure the plain issues of everyday life and to confuse the sound logic of common sense. Common sense immediately suggests some obvious situation, such as when we desire to buy a picture, or when in a more detached and impractical state we are searching for a rhyme, and triumphantly points out to the philosopher that there could not possibly be any mistake as regards the identity of the thing desired and the one by which we are satisfied, because the thing—the picture, or rhyme—is *obviously* there, when bought or found. But can we assure our “common sense” man that this is *obviously* not our difficulty? For it is plainly not the physical thing, or sound, which is either desired or enjoyed in satisfaction.

To avoid abstract speculations, which may sound like mere assertions unsupported by any objective evidence, let me refer to experimental psychology. I shall try to illustrate my thesis by reference to Dr. Ach’s classical experiments with rhyming. Even though the validity of his conclusions has been challenged and his procedure modified, which only shows that the philosopher cannot really depend upon what the experimental psychologists believe to be a “fact,” yet for the purposes of illustration those minor disagreements may be disregarded. In the main, I think, his analysis has been accepted even by his critics.

The psychological ingredients of my searching for a rhyme are described as follows: (*a*) the intuitional factor—a more or

less uncomfortable tension (*Spannung*) which may outwardly reveal itself in changing the position of my head, pressing the teeth, lips, etc.; (*b*) the objective factor—a conscious anticipation of the specific activity consisting in going over a series of words with identical endings, i.e., a conscious realization of what is to be done, which sometimes is apprehended as an inner command: to rhyme! (*c*) the vital (*aktuell*) factor—the element of determination (*ich will wirklich!*) and readiness to do some work (*antizipierende Setzung*), an effort which, as long as it remains an effort, is disturbing and, if prolonged, even annoying; (*d*) the vectorial factor (*das zuständige Moment*)—the specific direction, or attitude of being, so to speak, in “neutral,” ready to “shift” in a definite direction.

Some (perhaps all) of those ingredients are rather unpleasant, or at least disturbing. The state of desire, if indefinitely prolonged, becomes annoying and even painful. It would be descriptively unfair, however, to maintain that what I really desire is the elimination of those unpleasant feelings of tension, effort, and expectation. In the case of some abdominal disturbances, hunger and thirst may be perceptibly eliminated by the insertion of liquid through the rectum. I do not believe that anyone would venture to say that such elimination is just what was desired. One wants to drink, and not merely to eliminate thirst. The elimination of thirst is the concomitant circumstance of drinking, but not the object of desire.

Now the state of satisfaction consists of a number of comforts, just as the state of desire is associated with a number of discomforts. Those comforts, say, *a'*, *b'*, *c'*, . . . , are psychologically, i.e., in experience, wholly different from, and even opposite to, the preceding discomforts. In point of actual material given in experience, those two, i.e., comforts and discomforts, have little or nothing in common. They are just as different from one another as red light is different from the electromagnetic equation or a parabola in polar co-ordinates is dif-

ferent from its equation in rectangular co-ordinates. What makes us think that their objects are identical? Nothing, I think, but the actual emergence of one group of ingredients from the other. Every element in  $a', b', c', \dots$  is a function  $i$  of  $a, b, c, \dots, = i(a', b', c', \dots)$ .

#### THE EMPIRICAL DRAMA OF DESIRE

In this sense it can properly be said that we can never have the thing that we desire, though not for the trivial psychological reason that we are never satisfied with what we have nor because we are so constituted as to wish always the impossible. The gentlemen of the pulpit who often condemn us for having too many and too imprudent desires, which preclude contentment, are not radical enough in their condemnation and criticism. It is not because our desires are too ambitious and varied that they are rendered unfit for satisfaction. The difficulty is a much more fundamental one. It is, in fact, logically impossible for any desire, however modest and reasonable, to be satisfied precisely by the thing that was desired. For the thing is changed by satisfaction. In the state of desire the "thing" is empirically different from what it is in the state of satisfaction. It terminates, it literally *ends* in satisfaction. That is why we call it an "end." The "thing as desired" and the "thing as given" are different precisely in the same sense in which the equation of a curve with respect to polar co-ordinates is different from its expression in rectangular co-ordinates. It is a question of reference. The state of desire provides a specific frame of reference in relation to which the "thing" appears as tension, hope, love, anticipation, vibrating with a mode of painful negativity and restless finality. Colored—or discolored—by expectation, hope, and love, the object of desire recedes to a dynamic distance from which it appears as floating in its own specific magnificence, detached from actuality, and surrounded by anticipations and fears and jealousies. This is

the source of romanticism, the element of which is inevitably present in every wish, however small and trivial.

When, and if, satisfaction arrives, the "distance," and the specific magnificence caused by it, both disappear, and the "thing" emerges—like a mountain the foot of which we have reached and which we have now to ascend—with an entirely different aspect, full of unexpected realistic details and unforeseen complications. It may be beautiful still, and magnificent in its own fashion; but it is different from what it seemed at a "distance." For just as the mechanism of vision creates our visual space, the "gulf" that separates us from the things we see, similarly the mechanism of desire creates a semblance of axiological, dynamic "space," with its own illusions of distance and depth, with its own measuring code according to which the things are divided into less and more desirable. And when the things are viewed from that "distance," through an axiological "gulf," as it were, they seem quite different from what they are in the state of satisfaction, that is, when the desire with its specific distance is eliminated.

This difference, however paradoxical it may seem to the common sense, is a purely empirical phenomenon, given in experience, and not at all excogitated by the abstract philosophical mind. What makes it so strange is precisely the common-sense philosophy which rests with the *assumption* that the things in both situations are identical. This is no more than an assumption; for it is precisely the identity that is excogitated—added by the pure reason, one might say—not the difference. What are actually given in experience are two incommensurable distinctions, two sets of empirical data which are actually constituted by wholly heterogeneous elements. Music is the only domain where the object of desire is empirically coincident with that of satisfaction. For what we expect from music is, not satisfaction, but various forms of desire, pure and naked, and valued exclusively for their own

sake. Except in music there is no sphere of life in which we are empirically allowed to have the thing that we desire.

This accounts for another familiar phenomenon of daily life which has been noted and recorded by popular wisdom all over the world and which in spite of its proverbial familiarity has a profound metaphysical significance. What I have in mind is that we seldom, perhaps never, fully appreciate what we have. For in the attitude of having we underestimate the value of the thing, compared, of course, to what it seemed in the state of desire. When satisfied and "happy," we are prone to take things for granted. To be sure, we still enjoy them. And it is, of course, precisely in the state of satisfaction that we do enjoy them, but not to the extent to which they have seemed enjoyable before they were obtained; because now, in the state of satisfaction, they have ceased to vibrate with that restless and exciting color of expectation characteristic of desire and have lost the romance of the "distance." In the attitude of having, we cannot preserve the standards of desire. In moving toward a goal our standards become, just as in physics, shorter and shorter, until at the "end" the factor of "distance" is wholly eliminated and the thing suddenly appears in a wholly different light. The thing is now "possessed"; and "possession" brings it to an end. This may be regarded somewhat as a consolation to the one who fails: It gives him the assurance that the one who has the thing that he is craving does not enjoy it in the way in which he feels he would enjoy it. This simple experience is the source of many a religion, and is often interpreted as the fundamental tragedy of human existence.

But this is wrong. Our desires are neither false nor even deceiving. The identity (between the thing desired and the thing possessed) is there. Only it is not a matter of direct experience, at least not in the conventional sense of the word. Our discussion should not be interpreted as a variety of pessimism. Pessimism is one of the fallacies of the absolutistic point of

view. In a higher sense, we most assuredly *can* have the thing that we desire; only it is not the thing of immediate awareness, not a complex of empirical data, in other words, not "happiness," but something in the nature of an invariant—another case of necessity in transformation.

#### THE OBJECT OF DESIRE

The situation is somewhat similar to a moving picture. The drama that we see on the screen is presented to us in visual experience by means of a succession of separate and discontinuous glimpses, each representing a certain aspect of the dramatic situation that is going on in our mind. The reason why the illusion in this case is so beautifully successful is because it imitates the *methods* of reality. We "see" a drama, because we "think" of each succeeding moment as a function of the preceding ones. Similarly, in the act of satisfying a desire we feel that we are confronted with an objective identity only because the group of elements constituting satisfaction is admittedly *not* independent of those constituting the state of desire. Both are glimpses, as it were, of the same dramatic situation. We cannot produce the elements of satisfaction arbitrarily. We have to take them as they come and in the specific form in which they are determined by nature. To be sure, they come in the form in which we wish them to come, but that is only because we *cannot* wish them in any other form. A hungry dog eating raw meat has, no doubt, an experience of very specific pleasure. A cow chewing fresh grass may feel blissfully contented. The tomcat's sexual orgasm is very probably quite different from that of man, because it is connected with a good deal of sadistic cruelty in clawing the female. I may wish to have, or at least once to live through, similar sensations; but I cannot, because my sex has objectively a different organization, and I cannot desire sexual union in such a wild form, as I cannot satisfy my hunger in the cow's fashion. We must agree

with Hume (III, 183) that "what seems the most delicious food to one animal, appears loathsome to another; what affects the feelings of one with delight, produces uneasiness in another." But it is wrong to conclude on that basis, as Hume does, that values "are not really in the objects, but belong entirely to the sentiment of the mind." For it is precisely the relativity which suggests and guarantees objectivity in the matter. I cannot make my cat enjoy fruit salad, and I myself cannot enjoy raw meat. *I cannot*—which means that my desire is transformed into satisfaction in a manner over which I have no control and which is objectively prescribed by nature. Hence my desires are objective precisely because they are relative.

Was it not this manner of relativity that Thomas Aquinas had in mind when he wrote about "commensurateness of ends and acts"? "All that is directed to an end," he says, "must be proportional to that end; but acts are proportional to an end by a certain commensurateness which," he expressly adds, "depends on circumstances" (*actus autem proportionatur fini secundum commesurationem quamdam, quae fit per debitas circumstantias, unde consideratio circumstantiarum ad Theologum pertinat*). I am not at liberty to desire in any form. The elements of desire correspond to the elements of satisfaction. They are not invented, or excogitated, or "produced by sentiment." They are transformed into one another independently of our inventiveness or imagination. And the consciousness of their mutual dependence, the realization of inevitability in the process of transformation, constitutes an invariant which is equally well defined by my desire and by my satisfaction. In everyday language we say that we are satisfied precisely by the thing we desire. The "thing" is never given, never present in our mind directly, as a single entity, visible or invisible. It is not an entity, but necessity in transformation.

Thus we are confronted with transformations at the very threshold of ethics. "Things" given to us in desire are popu-

larly called "values." But the popular concept of "value" is very vague. The philosophical concept, however, is not much clearer. The difficulty of clearing it up rests with our absolutistic habits of thinking: we are anxious to locate a "value" as an identity, as something point-like that can be grasped by a single act of mental operation. But, as such, it stubbornly evades all our efforts at identification. And it will continue to evade us until we realize that this evanescence constitutes its nature, that we are confronted with values only in the process of transformation, and that they become increasingly firmer and more secure with every new act of transvaluation.

It was suggested that the simplest case of transvaluation can be recognized in satisfying a desire. We do not ordinarily call it transvaluation because we are rightly convinced that what we are striving for is exactly the same thing that we get, if our desire is gratified. And we call the thing "value." Hence, we argue, there is no transvaluation taking place in this elementary situation. For does not transvaluation imply a change of values? And yet what happens in this case is very much the same as what happens when by self-education and training we succeed in changing our desires and believe we have thereby acquired the right to speak of the change of values.

It would, indeed, be very advantageous to ethics to reserve the word "value" for the axiological invariants. But our common language is in a state of hopeless confusion in this respect and in the vast majority of cases employs the word "value" to signify indiscriminately the subjective satisfactions and appreciations themselves or the advantages which accrue from values as concrete items of experience. This linguistic uncertainty reflects painfully upon the very foundations of ethical knowledge. For example, the controversy between ethical absolutism and relativism can be reduced to this verbal confusion: When speaking of values, the absolutist, who believes in immutability of values, presumably has in mind the axiological invariants

underlying the experience; whereas the relativist, who is ever so anxious to emphasize the subjective nature and variability of axiological judgments, obviously regards the appreciations themselves as values. Thus they speak of two totally different things, calling them by the same name, "value."

#### VALUES AND ADVANTAGES

I propose, more or less arbitrarily, to retain the word "value" exclusively for axiological invariants and to call the relative manifestations of those invariants in experience "advantages." Advantage is here defined, not in a businessman's sense as a possession or an asset, but as a source of possibilities, attitudes, life-angles. An advantage—eventually disadvantage—if imputed to a responsible agent is called, respectively, "merit" and "demerit." Such terminology is admittedly artificial and not very convenient. But it is the best I can think of to express the difference that would correspond to the distinction between ideas and concepts in logic. Advantages will then stand for concepts; values will be invariants. This, however, should not be interpreted as a concession to the conventional absolutism. Values are not herewith regarded as immutable entities. On the contrary, they will be shown to exist only as groups of mutations. The word "value" in this sense is a technical term, and is to be used as defined. The colloquial implications must be conscientiously removed from it and held at a respectful distance; for in common language the word "value" is employed to denote what is here called "advantage." The terminology used in ethical literature is equally unsettled and confusing. In the vast majority of cases, what the absolutistic moral philosophers call "values" are axiological formulas taken relatively to a given frame of reference, a frame of reference which is then immediately forgotten and disregarded. Hence, in our sense, they are merely advantages and therefore fundamentally relative.

Thus, from the absolutistic point of view, the ethics of relativity will seem only another attempt to surrender all our "eternal values" to the power of time and circumstances. For such "values" as truthfulness, courage, liberty, etc., will be here treated as utterly relative, i.e., as mere advantages which, under different circumstances, may easily become disadvantages. The term "value" in the absolute sense will be here reserved exclusively for those factors which are objectively responsible for what invariably happens in experience, namely, for the fact that an obvious advantage under different circumstances becomes an equally obvious disadvantage, and vice versa. The objective situation underlying and controlling such transformations will be termed "value."

It has been shown that ideas can be variously defined with respect to different frames of reference. It will be shown that the same, in general, holds true with respect to values. There is, however, an essential difference in the nature of the situation: values in their specific mode of existence cannot be properly determined by definitions. They are not specifically rational or intellectual units. Intellect alone, even if assisted by experience, is not sufficient to grasp a value. For values require a specific form of approach which is variously characterized as voluntaristic or teleological or pragmatic. As my space is limited I am not in a position to enter here into the discussion of this elementary question. And I do not think that much could be added to what has already been said on the subject in recent times by eminent authorities. It seems to be the general consensus of modern writers on ethics that values, even though they can be "known" and "communicated to others," can never be properly understood or grasped in their full significance by the intellect alone. Their meaning is not grasped in thinking, but in acting, striving, feeling. This I accept without proof.

Thus I agree with the majority of writers on the subject that value cannot be expressed in concepts or purely intellectual

units. In what, then? Shall we say that values are expressed or manifested in advantages or satisfactions in the same sense in which ideas are manifested in concepts? To justify this terminology I may refer to the common usage of words, even though the common usage may not be always consistent. A thing is commonly called valuable if it affords a number of advantages. Economic goods, for instance, obviously present to us innumerable advantages. The chair I am sitting on has a number of obvious advantages as a sitting device as compared, for example, to a bench. It has many ornamental advantages as an article of furniture. It has advantages as an article of exchange. On the whole, as a value it is expressed by, and it consists of, advantages.

But advantages are manifestly relative to opportunities. Of course, I can vaguely desire, as I can speculate, to use a German phrase, *ins blaue hinein*. But such a "passive longing" is merely an incomplete manifestation of the will. A normal act of will implies and involves the vision of its possibilities in action: *möjlighetens intuition lyser alltid öfver viljan*. This idea of the inherent relativity of will and "possibility" is a very fruitful idea. If conceived on a large scale, i.e., *kulturphilosophisch durchgeführt*, it inevitably leads to the doctrine of *Dasein*, which in its later post-Spenglerian interpretations closely approaches the form in which it was originally conceived in Scandinavian philosophical literature. Unfortunately one finds among German philosophers no reference to that original source. From an international point of view, Mr. Heidegger is by no means such an original thinker as he himself seems to believe: He never mentions his predecessors. Had he done this, he would have to begin with Sweden.

The phrase, "will is relative to possibility," if translated into objective axiological vocabulary, becomes: "advantage is always relative to opportunity." Without opportunities, advantages cannot be even conceived. In a military camp a comfortable

armchair is of no advantage, because there is no opportunity for leisurely sitting. If life consisted of military operations, an armchair would not have been even conceived, except perhaps as a form of nuisance. In general, what is of advantage in one set of circumstances may turn out to be a disadvantage in another set of circumstances. Love and devotion are great virtues, but when a loving parent is determined to promote the interests of his beloved offspring to the detriment of other young people we are apt to say that he is taking an unfair advantage of social conditions. National self-respect is a very good thing; but when a defeated and perhaps unjustly oppressed nation endeavors to restore its self-respect by showing its power over defenseless national minorities, it evokes our profound contempt.

Circumstances provide channels for the advantages to proceed. We call those channels "opportunities," *Möglichkeiten des Daseins*. They are not to be conceived literally as just "standing around." For they are not indifferent to advantages. "Circumstance" is described by Thomas Aquinas (II, 7, 1) as "being extrinsic to the thing, and yet touching, or approaching it locally" (*dicitur autem in localibus aliquid circumstare, quod est quidem extrinsecum a re, tamen attinguit ipsam, vel appropinquat ei secundum locum*). Advantage is like "local time" in physics. It is a locus of points, metaphysically speaking, in which circumstances approach values, touching them, as it were, on their phenomenal surface, and yet remaining "outside" (*extrinsecum*) of their invariant structure—a bridge between value and reality. This is a subtle way of showing the dependence of values upon circumstances. But modern times have no ears for subtleties. We are never satisfied with abstractions. Concrete references are wanted. But since the poor philosopher is not in a position to furnish statistical tables compiled from metaphysical events—for nothing ever happens in his metaphysical spheres—the only way by which he can satisfy the demand for concreteness and verification is by illustration.

Before proceeding any further with my main argument, let me show, therefore, how and in what sense some of our most cherished "advantages," which in conventional terminology are referred to as "values," are rendered concretely relative. As I am not in a position here to elaborate an exhaustive "table of values," may I refer to just two individual cases: the value of health and that of liberty? I have selected health and liberty because both are commonly regarded as so obviously valuable that relativity in this case, I think, is more difficult to show than elsewhere. The results, I hope, will thereby be rendered more conclusive.

#### THE VALUE OF LIFE AND HEALTH

Strange as it may seem, life and health have gained recognition as values only in comparatively recent times. To be sure, they were treated as values by the average man, but they were not always recognized as such by moral philosophers. After many centuries devoted to the most strenuous ascetic exercises, at least the Western part of mankind has finally arrived at the conclusion that health is the basis of life and is not only worthy of cultivation but needs and deserves social protection. It constitutes that aspect of man's being by which he finds himself in harmony with nature and in full possession of all those gifts with which he is so lavishly endowed. It has now become a solid part of the enlightened public opinion, and is generally taken almost axiomatically for granted, that health is instrumental to higher interests.

But it is plainly not only the service rendered to "higher interests" which constitutes the value of health. It must have an intrinsic value, as a manifestation of success achieved by the ages of biological evolution, as an expression of service rendered by the past to the future, or, theologically speaking, as an acknowledgment of receipt to the powers of creation. By being in good health every living creature offers its hymn to the

sun, to the stars, to all the powers that be. "I am here," it seems to say to the celestial and evolutionary forces which have nursed him through the ages of evolutionary growth; "I am here fit to live my own life, to enjoy my share of universal happiness. You, who brought me into being, may rest contented. Your work of creation was not in vain. I am your triumph." Thus health has a religious significance as a testimony of cosmic success, as the triumph of the present over the difficulties of the past. It represents the amount of effort that nature has put forth to produce that particular type of organism which is concretely and objectively found to be in good health.

Thus health is an advantage. It is one of the easiest advantages to appreciate—so easy in fact, that it is thrust upon us with the flavor of the absolute. How can health become a disadvantage? If it is used for unworthy purposes? But that does not affect its intrinsic worth. Every value can eventually be misused or wasted. To charge a value with the faults resulting from a wrong approach to it would be a mark of relativism, not relativity. To argue that the value of health is relative on the ground that it may be applied for the attainment of unworthy ends is just as valid as to assert that the proposition "two times two is four" is not true because it may eventually be used in a scheme to cheat people. Arguments of the kind, both in ethics and in logic, are inconclusive either negatively or affirmatively.

In view of these difficulties, how can relativity of health be demonstrated? Let us apply our usual method. It is contended that values are intelligible only as projected upon a certain framework of circumstances. What are, then, the circumstances that render health so obviously valuable as to exclude all faith in the reverse? Health is defined as fitness for life. But life is not restricted to its positive direction only. Pain and suffering are just as much "life" as are pleasures or joy. Hence health means just as much fitness for pain as it means fitness for hap-

piness. In the negative direction, an organism in good health may properly be regarded as a sensitive mechanism for registering all kinds of disturbances, and if the disturbance is violent enough it is regarded as pain. Take an extreme illustration. A man facing torture will certainly regard his health as a great burden, even as a curse. Every item of health will, under the circumstances, be held, so to speak, against him. He will not merely have to endure suffering for a longer time but he will probably feel it more substantially, because there will be more substance—biologically—to be disturbed and destroyed. His health will now be turned into a sensitive instrument for pain to play upon, and every string of his nervous system will reverberate with shrieks and sobs.

This is an extreme case. But life offers innumerable gradations between torture and ecstasy. To be conscious of the power of pain one does not have to live in the Middle Ages and witness the infliction of justice by the Holy Inquisition. It may suffice to visit one of our post-war veterans' hospitals and see the variety and refinement of tortures to which thousands of the war veterans have been exposed for years. If the reader had, perchance, been asked to speak or play for the insane in those modern institutions and had heard the groans mingled with outbursts of infernal laughter from the haunted audience, he could realize how infinitely grave is our own life. The sufferings of those unfortunate "heroes," now forgotten by everybody except their doctors and nurses, are prolonged in proportion to their former health.

In view of such facts one begins to feel that our social life, the glorified system of what is eulogistically called the "values of association," represents an inexhaustible mine not so much of pleasure and happiness as of suffering and pain. In a million years of the most brutal struggle for existence all the animals on earth have not suffered so much excruciating pain and fear as men have in the last twenty years. Objectively and impar-

tially speaking, it does not seem reasonable to believe that man is created for happiness. And as a matter of fact, such beliefs were rarely advocated until quite recent times. Ancient hedonism is quite different from optimism, which is a sweet invention of modern clergymen, and is one of those philosophic superstitions which are made possible by the peculiar conditions of modern life. In our days we have means of making pain and suffering less conspicuous. We have learned to hide them behind prison bars and hospital walls. In the Middle Ages they were more conspicuous. Those innumerable sufferers who, by the "beauty" of life or by the "grace of God," were physically mutilated or mentally and socially deranged remained in the public eye—a sad, but picturesque reminder of what life was capable of producing in the negative direction. In view of such an abundant display of negativity, life, and particularly the healthy physical life, inevitably appeared to the more sensitive souls as a disvalue. Hence the emphasis upon asceticism: "it is better to flee from here (φευκτέον ἐντεῦθεν)," as Plotinus urged his disciples who had the misfortune of living under Decius, Quintillus, and Claudius, in the midst of Gothic danger and militaristic dictatorship. Asceticism is neither a perversion nor a matter of superstition entertained by backward people who lack "scientific" training and do not know the value of "facts." Asceticism is a sublimation of fears of life—an axiologically inevitable reaction to life projected upon pain and suffering. In modern times it would be called "a form of escape"; Plotinus called it φυγή, "flight."

#### THE VALUE OF LIBERTY

I am here taking for granted that political freedom or liberty is a value. I do not wish to impress the reader with the

<sup>1</sup> Compare Vladimir Solovyov's defense of asceticism in his *Justification of Good*, p. 65 (Russian): "Flesh is strong only by the weakness of the spirit, and lives exclusively by the spirit's death. And therefore, the spirit for its own preservation and protection requires and demands the weakening of flesh."

sanctity of it. My purpose is to show that for every particular set of social and economic conditions the ideal of liberty has a different meaning, that the advantages it carries with it are variable, and that it may very well happen that under some conditions it will manifest itself as a positive disadvantage. For instance, the slave owner is free: he is legally at liberty, to exercise unlimited power over his slaves. The fact that he eventually may treat his slaves well for either economic or humanitarian reasons does not render his position as a slave owner less objectionable. It is not his individual disposition nor the material content of his actions but precisely the form of his power, the kind of liberty that he legally possesses, which is unjust. His liberty is a disadvantage to society as a whole. It is ethically objectionable. Absolute monarchy may be an excellent form of government as long as the monarch reveals the proper sense of duty and acts in the interests of his subjects. But when, as Plato has well shown in *The Laws* by the example of the Persians, the monarch puts the duty and respectability aside and commences to abuse his power in his own selfish interests, his liberties are clearly manifested as a great political evil. And, once again, what is fundamentally evil in the situation is not his individual conduct but precisely the political system which leaves so much freedom at his disposal. Liberty, under some circumstances, is an evil.

The majority of our social evils are forms of liberty. Money, for instance, has been called "coined liberty." Possession of money in our society guarantees an increased, and sometimes almost unlimited, freedom of action. And it is precisely this freedom, not the wrong use that some private individuals are making of it, which is bad and unethical. It is commonly believed that social and political reforms are chiefly concerned with the problem of gaining more liberty. This, one of the commonest revolutionary illusions, is refuted by almost every revolution in history. What a given revolution is really con-

cerned with is not so much gaining liberty as destroying certain historical liberties which under the "old regime" existed in the form of various privileges and monopolies. Freedom gained after a revolutionary upheaval is in the vast majority of cases a result of some other form of freedom or liberty being suppressed. To restore social and economic justice does not at all imply the necessity of introducing more liberty but primarily the problem of depriving certain groups, or certain individuals, of too much freedom and liberty concentrated in their hands. And the resulting gain of liberty for others is not always, and not necessarily, an advantage. Freedom of religion, for instance, gained by the Protestants at the end of the Middle Ages was of a very great advantage in so far as the excess of political freedom vested in the Catholic Church had crumbled down and such terrors as the institution of Holy Inquisition ultimately were abolished. But the freedom thus gained by the masses has often proved to be of a very doubtful nature. In America, for instance, where conditions for the proper development of intellectual life are not very favorable, religious freedom has degenerated into the privilege of every freak and crook to believe and to preach any kind of nonsense he deems sacred or profitable. Similarly the French Revolution, by emancipating the so-called "third class," inaugurated a new era of "liberalism" which, under the policy of *laissez faire*, was bound to degenerate into a new form of exploitation of labor by capital. For the conditions under which the new "liberty" was allowed to operate were not greatly changed by the political reform, and in so far as the concept and the legal system of "private property" remained the same it counteracted the advantages gained by acquiring the new rights. In many countries the emancipation of peasants and the abolition of slavery has been carried out without duly considering the social and economic background of the reform, and the result has been a new accumulation of difficulties and friction which eventually

leads to further revolutions, as in Russia, or to interminable racial hostilities, as in America. Thus relativity imposes certain political duties upon the reformer which we shall consider more in detail later.

#### FUNDAMENTAL OPPORTUNITIES

After having thus satisfied the indignant curiosity of the absolutist as to how "advantages," which he is inclined to regard as the most sacred "values," are to be rendered relative, we may proceed with the interrupted argument in preparation of a prospective proof of objectivity.

To summarize the argument, it will be remembered that "value" was tentatively defined as a joined object of desire and satisfaction. It was suggested that neither the desire nor the satisfaction alone in separation from one another is in a position to secure objectivity of values, which is given only in transformation. Later we drew a distinction between values and advantages, which, according to our general scheme, should correspond to the distinction between concepts and ideas in logic. Values are said to be manifest in advantages in the same manner in which ideas are manifest in concepts. Advantages are given in experience; whereas values, like ideas, inevitably transcend experience and are accessible to us only relatively to a certain frame of reference, that is, within a world of opportunities. As Georg Simmel has expressed it, the formula of the value as such corresponds, and runs parallel to the formula of the world. Paraphrasing Kant, we may say that values without opportunities are empty, whereas opportunities without values are blind. Only a harmony of value and opportunity constitutes action, and makes will possible ("*viljan reser sig först, när vi tro på den . . . möjligheten att utföra en handling*"). Thus the category of opportunity corresponds to what in logic we have called "frame of reference." Advantages can exist only within such frames (*secundum commesurationem quamdam*).

Reality is so constructed as to afford opportunities, or openings—*Möglichkeiten des Daseins*—for the values to take place or to be effective. This remarkable adaptability—*commensuratio*, or affinity—of the material world to the demands of values is sometimes pronounced to be a great mystery, pointing to some profound metaphysical roots. This feeling of mystery, I think, is due to an artificial theoretical isolation of reality and value. If value is conceived, in an absolutistic fashion, as a separate and independent entity, an immutable something apart from the world of existence and of a different “stuff,” then, indeed, it is not merely difficult but logically impossible to understand how the blind and wholly indifferent mechanism of reality could so readily respond to the demands of values as to provide suitable homes for them to abide. Under such conditions the hypothesis of a benevolent God as the commanding master of the universe becomes necessary to explain the inexplicable.

From the point of view of relativity this becomes entirely unnecessary. Value is not a separate entity which exists, or subsists, somehow and somewhere in the high metaphysical “spheres,” like a mysterious light illuminating nothingness. And the world is, perhaps, not so blind and indifferent as it seems to be under the artificial conditions of laboratory work. The world, as it is known to us in active practical contact, presents innumerable opportunities for the manifestation of values. This vast universe of ours, which appears so blind and indifferent when viewed through a telescope or studied in a test tube, is as flexible as wax and as tender as a lover when values are taken into consideration. Crude and blind as it is, it nurses the most delicate and fragile values which, if not for it, would forever remain sleeping in their enchanted “spheres.” Nature brings them to life—for who else does?—sustains and supports them throughout their intricate, complex, and capricious careers. To be sure, nature often breaks the most valuable

things, but only things, not values. Having destroyed one symbol, one manifestation of a value, it immediately proceeds to build another symbol, another castle for the same value in which to dwell. It never destroys the value itself. Value cannot be destroyed by nature. For nature herself is nothing but a response to values.

This affinity is not a hypothesis, certainly not an idealistic one. A moment ago we irritated the idealist by advocating the heresy of relativity—for him, perhaps, going a bit too far. Now the materialist will be indignant at our statements. With an impatient shrug of his shoulders he will point out to us that it is not the world which so lovingly prepares sweet beautiful homes for values to dwell in but, on the contrary, that the values adapt themselves to the conditions of the world. Values are adaptations, and, like all adaptations, arise wherever the conditions are favorable and precisely in the form which the conditions prescribe. But what difference does it make? Is it not merely another way of saying the same thing? For, if values are adaptations, is it not true that nature is so constructed as to make those adaptations possible? I can very well imagine a world to which life could never adapt itself; there would be in it no life, no mind, no culture, no values. Life is based on oxidation. Hence it will be sufficient to eliminate oxygen from the world to destroy every possibility for life with all its potential values. Not as a matter of hypothesis, but obviously as a matter of fact, our world is *not* such a barren and desolate arena of death. Our cosmos is biologically adaptable; it is so constructed that biological adaptations are possible in it. In other words it is adapted to adaptations, hence is itself an adaptation. And that was all I wished to convey by calling the world flexible and considerate of values. By calling it flexible and considerate I wish to be as noncommittal as possible. I do not wish to argue in favor of the world-soul or cosmic intellect. Precisely the reverse is the case. It is not some mysterious and

superior intellect *in* nature, but nature itself which is flexible and considerate of values. The idea is not contrary to the spirit of materialism and could be endorsed by the most conscientious dialectical materialist, if he could only forget that the author is a bourgeois and not above taking part in a capitalistic competition.

But, however true, the idea is not very much of a discovery. Hume asks whether we ought to search for values in nature or must look for them in some other, presumably higher, origin. "I would reply," he says (II, 241), "that our answer depends upon the definition of the word Nature or 'matter,' than which there is none more ambiguous and equivocal. If nature be opposed to miracles, not only the distinction between vice and virtue is natural, but also every event which ever happened in the world . . . . In saying, then, that the sentiments of vice and virtue are natural in this sense, we make no very extraordinary discovery." On the other hand, if "nature" or "matter" is taken to mean what is dominated by the so-called "blind forces" (which probably are just products of our own blind fancy) and are identified with the mechanical "cause and effect," then we would be obliged to agree that "perhaps virtue will be found to be the most unnatural" and, according to Kant, the greatest mystery in the world next to the starry heaven.

Really, my contention is neither materialistic nor idealistic. It is purely descriptive. Values, I contend, are neither ideal nor material entities, existing either in "atoms" or in the "spheres." They are not entities at all. They are groups, like vectors, which define axiological directions. And like vectors they are real. For the directions thus defined are in the world and not in the higher spheres. The universe is saturated with values; it is affined to their advantages. This is the simple descriptive "fact" which in the history of philosophy lies behind the stubborn belief that Good and Being are one. This belief is an inference. Pure and unadulterated existence is not merely felt but is *concluded to be* a value because in its uttermost depths it

must be so constructed as to make other values possible. And whatever makes values possible is in itself valuable, is it not? But let us be more cautious. Suppose one does not agree that whatever makes a value, or values, possible is therefore in itself valuable. The universe may not be in itself a value, for it is soaked in pain just as much as in values. But one thing seems indisputable: as a means, as a gigantic machinery for the output of good and evil, the universe must be a term in the fundamental axiological equation, a necessary *and sufficient* condition for the realization of values. Not as a matter of hypothesis, but plainly as a matter of descriptive fact, the universe sustains and supports values. It offers them innumerable paths (opportunities) to walk on, paths whose ingenuity of construction far exceed the wildest dreams of human inventiveness. And, in a sense, it offers nothing else. The world *is* a road upon which values march, and pass away, and are born again. The cold indifference and "blindness" that nature reveals in our test tubes and our astronomical reflectors is a mere abstraction, a falsification, a result of an artificial ideological isolation. On a deeper level of thought materialism appears absurdly idealistic.

On the other hand, conventional idealism quite often reveals symptoms and characteristic attributes of the crudest materialism. It happens every time when good and value are conceived as constituting a higher sphere, or a realm, detached from reality, and determined to control life—to save mankind, as they call it—from a high mountain. This invariably leads to a tyranny of values. Abstract goodness, both academic and clerical, is a very selfish thing. Moreover, it is a mechanical thing. For everything artificial is mechanical. To impose a value upon circumstances which are not fit to receive it is the worst form of tyranny, and is possible only through various social and political mechanisms of enforcement. In the end it invariably defeats itself.

That is why the idea of paradise is so futile and ethically degenerate. Paradise is just a popular way of saying "absolute." Ethically speaking, angels living in paradise are just inflated values floating in pure nothingness. They are so good, and so immaculately perfect, that they do not need one another. They constitute a multitude in which One is just as much as Many, hence an inherently needless multitude. Where units are entirely self-supporting, morality degenerates into a monotonous hymn of praise which is neither enjoyed nor needed by anybody. Can an angel be courageous? Courage exists only where one is confronted with risk or a prospective sacrifice of some sort. Where one feels no inner resistance to the path prescribed by courage, where there is nothing to sacrifice, nothing to be afraid of, how can one claim to be courageous? To put it somewhat more bluntly, it is very easy to be courageous where there is nothing to fear. Similarly with love. It is easy for angels to love one another because there is nothing they can do for one another. Their love is just an empty sentiment, and in the long run a weary and drowsy sentimentality, characteristic of the minds which invented them. An angel cannot even be merciful. For mercy is a quality revealed by those only who are capable of wrath and indignation. But what is indignation to an angel?

These seemingly fantastic illustrations are not entirely beside the point. They make clear, I think, what is too frequently forgotten in the theory of valuation: the necessity of a frame of reference for valuational operations. Values are set up in view of certain conditions, *per debitas circumstantias*. But since the conditions under which we live are usually taken for granted and seldom attract our attention, we easily forget about them, as we forget about the air we breathe or about the friction of the soil that makes it possible for us to walk. And thus, forgetting conditions, we begin to think that the advantages afforded by values under certain local circumstances are di-

vinely ordained for all times and all circumstances. In Bernard Shaw's *Caesar and Cleopatra* there is a little incident in which the high priest of Egypt explains to the Romans that it is customary for the Egyptian kings to be married to their sisters, to which Britannus, who has just returned from the conquest of British Islands, promptly remarks that such a custom is highly immoral. The astonished priest cannot understand; and Caesar has to apologize for his ill-mannered officer by saying: "Pardon him, Theodotus; he is a barbarian, and thinks that the customs of his tribe and island are the laws of nature." Every angel is an idealized Britannus—an inflated and conceited sublimation of local conditions to the status of the unconditional. But it is not fair to infer from this, as Bernard Shaw seems to do, that the population of paradise is chiefly derived from the British Isles. For in the last twenty years other nationalities have far outrun Great Britain in the great patriotic drive for the heavenly gates of racial and national superiority. The population of paradise must have become strangely cosmopolitan—quite in contrast to their earthly ideals.

#### OBJECTIVITY OF PREFERENCE

We have repeatedly asserted that values are not single entities, either material or ideal, that their mode of existence is different from that of things and concepts, and rather resembles that of vectors and ideas. That is, values are manifested to us as groups of transformations. We shall endeavor to substantiate this view by the analysis of "preference." It will be shown that preference, even though an admittedly subjective phenomenon, has an element of rigid objectivity.

If I find blue color more pleasurable than gray, my preference in the matter is a fact which I have to accept just as I have to accept the distance which separates me from the bookshelf. It is not entirely rigid, of course. But neither is the distance. As a matter of fact, it is much more difficult for me to change

my preferences than to change the distance between myself and the bookshelf. Preference, like every fact, has its roots in objective reality, even though it is mental. It is an expression of a certain world-condition, for it is a matter of heredity combined with training. Nature, mind, society all have, in time, contributed to develop in me this kind of response. The fact is trifling enough; but if one attempts to "explain" it psychologically and biologically—which is an enterprise not entirely foreign to our experimental psychological laboratories—one will be formally confronted with a number of observable facts, such as  $a_1, a_2, a_3, \dots$ , each contributing something to form the preference. My preference,  $p$ , is, then, identically equal to a function  $i$  (we have called it Kantian function) of  $a_1, a_2, a_3, \dots$ , and we can symbolically write:

$$p = ia_\mu$$

where  $p$  stands for the will-preference,  $i$  indicates the logical operation of synthesis, and  $a_\mu$  stands for the set of components:  $a_1, a_2, a_3, \dots$ .

My preference, thus, is a relative manifestation of an objective situation which, like every factual situation, is subject to circumstantial variations. The set of factors,  $a_\mu$ , which, in conjunction with a given set of circumstances vaguely called "normal," make me prefer blue to gray, may, if projected upon some other set of circumstances produce a different and even opposite effect. Suppose a young man who "under normal conditions" also prefers blue to gray meets a young lady who is in the habit of wearing a gray suit and falls in love with her. With respect to this new set of conditions the components of the will-preference will assume an entirely different form. Assuming the doctrine of logical relativity to be correct, we find the objective situation—let us call it  $v$  (value)—logically expressible in terms of its relative components  $a_1, a_2, a_3, \dots$ , which with respect to a different set of conditions, even though still

denoting the same  $v$ , are expressed by a totally different group of elements:  $a'_1, a'_2, a'_3, \dots$ . The transformation

$$a'_v = ia_\mu,$$

where only the right side of the equation is to be summed up for all values of  $\mu$ , defines an invariant,  $v$ , which with respect to a given set of circumstances determines the preference.

This by no means leads to determinism. For even though my preference is rigidly determined, and though I cannot help liking what I have been trained to like, I am not in the least compelled to act upon either my acquired or my inherited preferences. Freedom of choice is still open to me. But this is not my problem for the moment. I shall come to it later. In the present paragraph I am interested only in showing that preference, even though admittedly subjective, has not merely an objective element but is nothing else than a manifestation of a profoundly objective situation with respect to a given set of conditions.

#### OBJECTIVITY OF AESTHETIC SENTIMENT

The foregoing description of "preference" as defining an invariant has an important bearing upon the problem of aesthetic objectivity. It has been repeatedly argued against the possibility of aesthetic judgment on the ground that the preferences upon which the artistic experiences rest provide no safe basis for an objective judgment. They change from person to person, from mood to mood. One can never be positive that in enjoying a work of art one feels exactly the same thing as anyone else. Music may supply a convenient illustration. A melody may delight us or annoy us or leave us indifferent according to our temporary state of mind; its appreciation depends upon the set of other emotional contents upon which the musical emotion is at the moment projected and with which it blends. From this the subjectivist concludes that there is no

“melody” as an objective emotional complex. To be sure, each melody has acoustic material which is presumably identical for all. But the organization of that material into melody is an individual and subjective affair.

The subjectivist is right. It would, indeed, be absurd to claim that everyone feels and enjoys melody in exactly the same manner as everybody else or that there is a certain standard, a certain model-experience which is more correct than others. Perhaps every time a melody is heard it is more or less different from all previous (and future) hearings of it. But what is it that *makes* the difference? The subjectivist is ready to give the answer: It is my frame of mind, my mood, my headache (to be more specific) that makes the difference. But does this statement not imply that the other factors involved in the situation do *not* make any difference? And is this not equivalent to saying that those other factors remain identical in the process? They make no difference; hence, they do not change. And there must be other factors involved in the situation, for my mood (or my headache) alone does not produce music, of course. Obviously, the result, that is, the aesthetic enjoyment (eventually aesthetic irritation), is produced by two things: one is my frame of mind, which (I agree with the subjectivist) is the cause of the difference in appreciation; the other is the music itself, the melody (or what else could it be?) which, according to his own statements, remains invariant, by implication.

Let us again represent the situation in mathematical symbols, which spell precision. I do not know how many times in my life I have enjoyed hearing Sibelius' *Finlandia*. I have heard it as interpreted by different conductors; I have read the score of it; I have played parts of it on the piano. In chronological order those experiences constitute a series:  $a, a', a'', a''', \dots$ . Let us agree with the subjectivist that the members of this series, i.e., different hearings of *Finlandia* as experienced by me,

are all different from one another. It is, indeed, very likely that every time I hear the symphony my reaction to it is slightly different from all the previous ones. But I am neither the author nor the master of those differences. (Of course, there might be *some* differences for which I am responsible, such as a better technical preparation, or greater historical information that I might have deliberately acquired; but even those differences *at the time of hearing* are beyond my control and must simply be accepted.) Perhaps the greatest difference is between the first and the second hearing of the masterpiece,  $a$  and  $a'$ . At the time of the first hearing the tonal material came to me as a complete novelty; it was projected upon a mental frame in the construction of which *Finlandia* itself had no part. But after the first hearing my mind was modified forever; the experience itself,  $a$ , became an integral part of my spiritual background. This, together with many other, more incidental, circumstances, has rendered my second hearing,  $a'$ , different from the first. Since in bringing about this difference the first experience played an important part, the mathematician would say that the second experience,  $a'$ , is a function of the first,  $a$ . But the second hearing depends not merely upon  $a$ , but in a still higher degree upon my general frame of mind at the time of the second hearing. Hence  $a'$  is a function of both  $a$  and the frame. This, in mathematical language, is expressed by saying that  $a'$  is obtained by transforming  $a$  into  $a'$  by means of the new subjective conditions. Thus even though the new conditions may be largely subjective (they do not have to be entirely subjective), the transformation is nevertheless an objective operation.

Now the symphony is a sequence of sounds. It takes time to play it. Hence the transformation cannot be performed all at once. In actual experience both  $a$  and  $a'$  are broken into elements: sounds, phrases, parts, etc. Each hearing is in itself a series. Thus  $a = a_1, a_2, a_3, \dots$ , and  $a' = a'_1, a'_2, a'_3, \dots$

Hence in our customary notation the transformation takes the familiar form:

$$a'_\nu = ia_\mu,$$

where the righthand side of the equation is to be summed up for all values of  $\mu$ , that is, for all the phrases constituting the composition, and—in the end—for all the sounds heard.

Thus the subjectivist's position turns against itself. In this analysis I have deliberately introduced nothing which the subjectivist could not endorse—nothing but a series of purely empirical data given in experience. Those experiences as actually lived through may be as different from one another as the circumstances may permit, ranging from ecstatic joy through dull indifference to the state of positive aversion (as, for instance, may very well happen when the symphony is heard under the condition of a severe headache). And yet, remaining entirely upon the empirical ground, and assuming no neutral entities or ideal archetypes, I am compelled to admit that every time I have a musical experience its entire content is imposed upon me with a character of objective inevitability. This content—it may be a symphony, a melody, or a theme—is not a single entity, not an ideal object in a punctual, metaphysical sense, but a group of experiences, which are so constructed that, if one experience is given, all others are uniquely determined by the nature of the circumstances under which the experience is lived through. And this is the only objectivity we know and are capable of grasping. It is something which is not produced by us but which produces us as creatures possessing an accumulated stock of experience which we call culture.

Thus objectivity is once again proved to be a child of relativity. A "theme," as a musical value, is said to be objective, not as an absolute and immutable object of contemplation, but only as an invariant in transformation. And it may here be convenient to remind the reader that if a function  $f$  of  $a_1, a_2, a_3,$

... *can* be transformed into another co-ordinate system and becomes in that system a function  $f'$  of  $a'_1, a'_2, a'_3, \dots$ , determinable from the equations of transformation, such a function is said to define an invariant. Invariant is not a thing, but a determinateness in transformation. Wherever  $f$  becomes  $f'$  by a known or unknown process of transformation, there must be an objective factor which *makes* the difference, i.e., transforms one into the other. And that factor is called "invariant" in mathematics, "idea" in logic, "value" in ethics and aesthetics, and "object" in philosophy.

A musical theme is one such object. From the point of view of the composer, "theme" is a value which affords a number of compositional advantages. And as such it is necessarily relative to the opportunities offered by a given musical code. A "theme" for the composer is not a vague sentiment that he endeavors to transmit to others, but a vehicle that literally carries him through the intricate channels of harmony, rhythm, structure, and melody. One cannot compose a fugue without adopting (eventually breaking) a certain system of counterpoint, without choosing a technically appropriate key, deciding upon the rhythmic pattern, and taking into consideration—positively or negatively—the existing musical traditions and forms, and innumerable other factors. The same theme may come out a commonplace if projected upon the simple two-four pattern, and may sound intriguing and brilliant if played in a valse form. Even a simple change in tempo can render a theme unrecognizable. The second part of Chopin's *Funeral March*—one of the most amazing attempts to combine lyrics with tragedy—if played a little faster is easily transformed into a vulgar dance. Beethoven's *Appassionata* is extremely sensitive to the slightest and subtlest variations in tempo. The change of the metronome notation from 126 to 112 at the moment when the main theme is introduced makes a tremendous difference for a sensitive musician; it determines the resolute and majestic character of

the incoming theme. The correct and effective execution of the passage depends largely upon the ability of the player to find the exact objective contrast in the speed of pulsation between the two movements.

On the whole, the value of a theme for the composer rests not with the vague and feeble feeling of pleasure which it provokes but largely with the possibilities which it presents in connection with a real and growing system of music, with the advantages which it affords relatively to a given musical code and a given set of musical resources. Within another set of musical resources—for example, with reference to the Chinese or Japanese musical forms—the same theme may be deprived of any value whatsoever. This does not imply at all that the Chinese and Japanese systems of music are inferior to ours or that their minds are intrinsically incapable of comprehending our musical forms; it means only that the advantages offered by a given theme within our system of harmony are no longer advantages for the Chinese methods and forms. They are *objectively impossible* because the Chinese system presents no suitable nexus for such advantages, or values, to arise—literally, for instance, no room for an *Appassionata*.

There is a very interesting and very ancient musical instrument called *shakuhachi*, a sort of clarinet employed by the Japanese Buddhists for ritual purposes. The instrument is said to be very difficult to play on, allows a peculiar combination of music and chanting in one, and has a vast literature of hymns specially composed for it. It is perhaps the most “philosophical” of all musical instruments in that it produces a highly mystic effect somewhat similar to that of Gregorian chants but more intricate and with much stronger cosmic implications. The construction of the instrument presents an unusual opportunity for utilizing the lower undertones, which are organized into a separate pattern that runs parallel to the main body of tonal material, thus dividing the sound into two planes and

symbolizing as it were, the division of reality into appearance and essence: the bright, somewhat shrill, and continuous foreground of higher tones suggests the noisy world of appearance, whereas disconnected phrases of the undertones, very low and soft, sound like brief and enigmatic utterances from another world.

This description may seem, and may be, somewhat fantastic. But those who have listened to the performance sympathetically and without the habitual Occidental feeling of superiority will probably agree that it is fairly correct. Each tonal plane has its own structure distinctly divided into phrases and themes. But none of those themes can possibly be utilized for the purposes of Occidental musical composition. Bach would not be able to do anything with them. Thus we see not only that *our* themes are unfit, and offer no advantages, for Oriental musical operations, but that their themes are equally unfit, in general, for our Western harmonic code. When we do make use of exotic musical material we are compelled to change it to such an extent that its original character is almost completely destroyed. And when an ultra-modern composer, such as Bartok, for instance, is determined to restore the original spirit of folk tunes, he is obliged to change the code.

We think that we solve the difficulty by saying that "we have a different sense of harmony," or that "our point of view in music is different from that of other races." This subjective terminology is very misleading, and to conclude from it that musical values are subjective would be a plain case of begging the question. Nothing could be more objective in art than harmony. What we call "our sense of harmony" is a function of acoustic relations which in themselves are strictly objective and even rigorously mathematical. When, therefore, a certain material—a theme—does not fit into our harmonic code, it is not because our "sense" makes it unfit but because it is objectively incompatible with a certain set of acoustic conditions.

And, on the contrary, the musician's appreciation of a theme as a value means that the theme offers certain advantages for musical development along the lines formulated by the laws of harmony, counterpoint, and structure; that it is affined to our musical system; and that the affinity, even though by no means obvious, can by a musically endowed person be found and demonstrated. The genius does not create this affinity—the value—of the theme. The affinity exists, or subsists, objectively and in itself; and nevertheless it is obviously relative, for it is an affinity with regard to a given set of acoustic conditions, without which the theme is neither a value nor a disvalue: it is musically indifferent and aesthetically nonexistent.

Not merely individual themes but whole compositions and even the composers themselves are in this sense manifestations of objective situations. It is not only the composer who creates music; in a deeper sense it is music that creates the composer. What is Chopin? The very possibility of asking the question in this impersonal form—what, instead of who, is Chopin?—shows that there is an element of coercive objectivity, an element of destiny, in him as a musical genius. He represents a certain stage in the development of European music which lay in the nature of music and not exclusively in the nature of Chopin. He has a logical place in our music, and his place was provided, for a long time before he was born, by the structure of tonal relations based on the harmony of overtones. Of course, his place could have remained unoccupied, like innumerable other "places" or "opportunities" which are still vacant and will perhaps forever remain vacant. It was a matter of historical accident that a musical genius was born in Poland at the time when her civilization was about to collapse, and that he lived most of his life in exile, in the atmosphere favorable for the development of romantic nostalgia for his native land. It was perhaps an accident that under the effect of this great longing he, like his compatriot and brother in misfortune, the

great Polish poet, Adam Mickiewicz, was continually falling back upon the reminiscences of his childhood, which, in view of his musical disposition, took the form of tonal reveries. But it was not an accident that those memories, the doleful tunes and graceful rhythms of his native land, *could* find a winged entry into the music of the West and that musical opportunities for their reception and development were abundantly provided by the network of forms established by Bach, Mozart, and Beethoven. This co-operation between a specific material and a specific form, in other words, this specific case of musical affinity, constitutes Chopin as a value. Of course, he had his individual moods and his racial characteristics. But to say that he has had a genius for translating his moods into sounds is to talk the cheapest kind of conventional nonsense. Moods cannot be *translated* into sounds. But sounds can cause certain moods to arise. It is an objective situation, a certain system of harmony and musical forms, which determines the kind of subjective reaction: the moods and feelings that we enjoy in listening.

This brings us to another possible "point of view" in music, that of the listener. The composer's frame of reference is the musical code of his time which he accepts, or eventually rejects. The listener's frame of reference is his own emotional constitution. This frame is apparently subjective, but not in the sense in which the relativist holds it subjective. For the relativist contends that the subject, the individual, is the source of value, that he somehow creates values within himself and then *expresses* them through the medium of sound, thus communicating his creation to others. The listener responds to the call because he knows how to read the mind of the composer through sounds.

This mind-reading theory of musical experience, based on the category of "expression," is widely accepted and very popular. It is commonly assumed—and the artists naïvely encourage

this assumption—that art is a revelation or “expression” of the artist’s soul.

It is almost pathetic to read discussions usually printed on symphonic programs pretending to explain to the ignorant public all the joys and grievances which the composer has condescended to pour into various movements of his composition. And many people still naïvely believe that the value of listening to good music lies in the opportunity of becoming intimately acquainted with the soul of the good man who composed it. There are till now, and I am afraid there always will be, many dilettante enthusiasts of music who with a sweet credulity repeat the fabulous story that by the sounds of *Moonlight Sonata* Beethoven “expressed” his reactions to a lonely landscape flooded with moonlight and covered with beautiful flowers or some other banalities.<sup>2</sup>

There is no harm, of course, in visualizing anything you wish while listening to music. Everybody does that. But the advocates of the mind-reading theory seem to believe that their singular visions and reveries are essential to the aesthetic situation at hand, and they boldly attribute their individual associations (which are relative, indeed, to the feeble powers of their own imagination) to the content and meaning of the artistic work itself. And thus the tragic harmonies of Beethoven’s *Opus 27* are brought down to the level of a pictorial moonlight melodrama that may be successfully utilized for advertising Ivory soap or Packard cars.

Music does to the unenlightened and unprejudiced listener infinitely more than merely provide pleasure or display for his edification the joys and sorrows of great minds. It molds and shapes our own minds. It is not “we” who create music from the depth of our soul, but it is our soul which is created and given to us by music. Music conveys no message; but it frames and forms character, and a very specific character—the one which we call *collectively* our own. In particular, I think that our Occidental music is responsible for our Faustian tempera-

<sup>2</sup> Henry Lanz, *The Physical Basis of Rime*, p. 272.

ment, our "soul," if you wish; a character capable of that restless longing and tireless search, of that dynamic energy and determination combined with brooding dissatisfaction, which is peculiar to our European and American culture. It lives in all of us, even in those who seldom, or never, indulge in listening to music; for the holy contagion spreads from one to another and affects the most distant and musically indifferent minds. It lives in Pasteur and in Gauss, in Goethe and Einstein, perhaps even in Henry Ford and Herbert Hoover. For it is the same in the practical prose of our industry as in the poetry of our sonnets, in our social utopias as in the abstract dynamism of our mathematics. Everywhere the same inquiring curiosity, capacity to ask and to doubt. Unlike Orientals, we live in a state of restless expectation, which now and then takes the form of hopeful anticipation. We are all tension, strife, and struggle, unrest mingled with faith, which permeates even our atheism. This is our soul, at least that part of it which, despite our aspirations for realism, remains incurably romantic. And it is this part which is so beautifully and comprehensively described and formulated by our music.

Musical values are confined to their acoustic frames. But the realities or "essences" which are behind those values go deeper. There is music in war, and music in our aspirations toward peace; there is music in business, and in family life. There is even more music in our science, in the academic dryness of the so-called research. There is music in our logic and in our philosophy. Hegel, for instance, is an intensely musical soul, and musical precisely in our Western sense; there is an element of great and lonely yearning in all his vast abstractions. And only as forms of yearning, German *Sehnsucht*, could they come into existence, not as dry intellectual schemes. Collectively we have a genuinely musical "soul." And we can safely say that our civilization will last as long as our music resounds.

But there are symptoms that we are at the end of our time.

I would not maintain, with some noted writers, that we are dying; but we are approaching a crisis—a great spiritual crisis, not merely an economic change. Music is one of the symptoms. The predominant tone of life, as it is manifested in music, becomes rapidly changed. Moreover, it seems that music as a form of art is losing its grip upon our mentality. There exists no longer the same intimate connection between the new musical forms and new attitudes of life. Music has ceased to be a driving force, and is rapidly becoming, if not has already become, a mere ornament. It is difficult to imagine modernistic music being cultivated on the farm, in the church, or even in the study. One can't hum it; one can't whistle it. It is no longer a part of our life. It belongs to the theater, to the concert stage, to moving pictures, to the dance halls. I shall not be so presumptuous as to recommend that more attention be paid to musical education in our schools and colleges. I am not at all certain that music is absolutely indispensable, or, in the new forms which it seems to take, even desirable in the formation of the new society and new civilization which is arising from our political and economic turmoil. But I am positive of one thing: if we shall have a new music equally great as the music of Bach, Mozart, and even Wagner, we shall be different people and have a different character from what we shall have if we allow music to die.

If music were just a matter of enjoyment, if—as the relativist maintains—its value were proportional to the amount of pleasure it affords, its decay and ultimate disappearance would not be such a great loss. With one pleasure gone, men will find something else to play with. But, as we have seen, music is not just a matter of pleasure. Of course, we enjoy it. But our enjoyment, the amount of pleasure derived from it, is small beyond proportion comparatively to its objective value or values. Pleasure is merely one form in which its value is manifested, one of the innumerable transformations in which its essence is

revealed. Of far greater advantage to us is the effect which music has upon the formation of our character or—in another perspective—the amount of insight it affords into the intricate “opportunities” of its own structure, which no doubt is somehow connected with the structure of reality. Hence, if music is gone, we lose part of ourselves, part of the world.

This imposes an additional duty upon our generation: not exactly to save music from ultimate decay—that would be beyond our power to control—but at least to consider the musical situation of today more carefully and seriously, as a problem of prime importance and not merely as a minor detail in the work of the ministry of education. Radio will soon mechanize and vulgarize music to such an extent that it may become beyond our power to repair. Moving pictures, on the other hand, may present an unusual set of opportunities for music to grow in such directions as the classical music could not have anticipated.

#### PLEASURE AND HAPPINESS

Reference to pleasure constitutes the cornerstone of the subjectivist's argument. It is argued that pleasures are so varied, transient, and intimate that nothing permanently and objectively valid can be derived from them. On the other hand, it is widely believed that values have their origin in pleasure. Hence, it is concluded, values are purely subjective. Moreover, pleasures determine our conduct through emotions. It is not the pleasure itself but the anticipation of pleasure which is hedonistically important for determining conduct. And anticipation of pleasure (or pain) is emotion. It is believed that ethical conduct and moral judgment are ultimately based on emotions, the moral concepts being regarded as generalizations of emotional tendencies; and it is held that the emotional origin of moral standards consistently leads to a denial of the objective validity ascribed to them by common sense and by

the normative theories of ethics. As a final stroke intended completely to demolish objective ethics and axiology—with a possible side glance at Kant—it is pointed out that the normative theories themselves have an emotional foundation.

But what of it? Is not emotion itself an objective fact? And does it not always point to, and is it not based upon, objectivity of some sort? Emotions are changeable, yes. But is not everything else changeable in nature? Is not physics pre-eminently a study of changes, i.e., motions? Of course, physics investigates what is permanent in motion, its immutable laws. But do our emotions change altogether chaotically? Is there not a good deal of necessity involved in every emotional change? Do we have an absolute command over our emotions? They come and go, are formed and transformed, as a rule, quite independently of our wishes. And even in case when we do deliberately change our emotional status, as we do sometimes deliberately change physical motions, are we free to do it in any way we like? Emotions are much more difficult to change than physical motions. They offer a far greater resistance to any effort to change and require a much greater ingenuity and much more delicate knowledge of conditions. Even the convinced subjectivists grant them objectivity in this sense. Hume, with his characteristic clarity and ingenuity of illustration, writes (II, 158–59):

A prisoner, who has neither money nor interest, discovers the impossibility of his escape, as well from obstinacy of the gaolers, as from the walls and bars with which he is surrounded; and in all attempts for his freedom chooses rather to work upon the stone and iron of the one, than upon the inflexible nature of the other. The same prisoner, when conducted to the scaffold, foresees the death as certainty from the constancy and fidelity of his guards, as from the operation of the axe or wheel.

Is not what offers resistance objective? Fichte identified *Gegenstand* with *Widerstand*. Are not emotions in this sense *gegenständlich*?

Pleasure certainly is. Pleasure is an adaptation. It is a treacherous device of nature by which she compels the individual to do what she wants him to do and thus keeps him in a state of agreeable slavery. The individual, from the cosmic point of view, is a difficult creature to handle. Would he on purely rational grounds care for the preservation of the species? Would he care even for his own preservation and propagation? There are millions of "rational animals" among us today who refuse to have children because they want "careers" and because having children is painful and unaesthetic. The same highly rational animals do not always refuse to have sexual intercourse. But take away the element of pleasure and they would not be bothered even with that. They would not even care to provide for themselves. For could you make a hungry animal eat, if eating would not give it pleasure?

On the other hand, the subjectivist's argument is very suspiciously absolutistic. For does he not say that values are ultimately based on pleasure? But if pleasure is an adaptation, how can it be ultimate? "Edimus ut vivamus, non vivimus ut edamus." This *ut* is a naïve, common-sense expression of the relativity and *objectivity* of appetites. For our pleasure in eating is merely a concomitant circumstance of the biological mechanism designed to sustain life. "Designed" is neither a slip of the tongue nor a trick, common among philosophers, to prepare a way for a huge *petitio principii*. "Design" does not necessarily imply a superior intelligence, or a designing agent, who would be responsible for the construction of the mechanism. It would be wise to express ourselves more cautiously. Whether the mechanism (of eating) is designed or not, it is there *to* (*ut*) sustain life. This particle of the infinitive, "to," is a noncommittal expression of the teleological factor inevitably present in the situation. Only colloquially may "eating" be defined as a process by means of which hunger is satisfied. Biologically it is a process by which energy is supplied to the

organism. You say it is done by mechanism? Yes, if "by mechanism" you mean by natural means without the interference of gods or demons, which is obvious to any unprejudiced mind. At least, it is a frank confession that we do not know by what it is done. But if it means "by atoms," does it not sound like advertising a course of mental telepathy "by vibrations"? For we are completely at a loss as to how "atoms" produce adaptations, desires, and pleasures. What I think we are safe to say, remaining on a purely descriptive basis, is this: the same objective situation which in biological terms is described as a "mechanism for obtaining food," manifests itself, with respect to the individual's frame of mind, sometimes as pleasure. Pleasure, in the case of higher-organized animals, is an essential part of that mechanism without which it would not work. But precisely in its subordinate position it could not be "ultimate." The pleasure itself, with all the advantages arising from it in the form of various enjoyments, comes into existence in consequence of the fact that "eating" is biologically of value. Hence value precedes pleasure. Pleasure arises on account of value; but it is not true that value originates in pleasure. It is a variant of value—an advantage in the struggle for existence.

The theoretical physicist assures us that physical events have no intuitional configurations. There is no visual "displacement" or intuitive "distance" in the real texture of events. There is a vectorial relation, called "aspect," which requires four measure numbers to specify it, and which is derived from the relation of "interval" by taking account not only of the mutual interval between the two events but also of their intervals from all surrounding events. "For some obscure psychological reasons," Eddington<sup>3</sup> tells us, "the mind has singled out this transcendental relation of aspect for graphical representation, so that it is conceived by us as a displacement or difference of loca-

<sup>3</sup> Sir Arthur S. Eddington, *The Mathematical Theory of Relativity*, p. 49. By permission of The Clarendon Press, Oxford.

tion." In biological matters the reason is more apparent. It rests with adaptation. The same chain of events which is differently viewed from various standpoints—which is described by the biologist as a specific adjustment of means to an end; which manifests itself in the life of a group, such as human society, as a set of advantages contributing to the welfare of the group; and which is eventually needed for the perpetuation of the species—is viewed by the individual as profitable from the point of view of his own selfish ends and, in case it requires a conscious effort on his part, is "singled out" by his mind for planning and scheming so that it is conceived by him as a pleasure or satisfaction of a desire. The relation itself—you may call it "transcendental," if you wish—the aspect, or value, as we call it here, is the invariant defined by all and each of those various advantages.

Thus happiness, as the sum total of pleasures during a given period of time, cannot be regarded as the ultimate source of value, nor as a factor sufficient to determine our conduct. Happiness is the most superficial of all ethical and axiological phenomena. It is a mere indication of the fact that everything goes well with other values with which, for the time being, the individual may be concerned. The purpose of nature is, not to please the individual, but—to take the most convenient example—to perpetuate the species. That the individual is happy in the act only shows that he has served the purpose and is generously compensated for his service—no more. To say that one wants happiness is not merely bad logic; it is simply bad grammar, just as it is bad grammar to say that one loves ice cream. It is an improper use of words. What one really wants is the thing, or value, which, if materialized, brings happiness. But one does not want happiness as an object, just as one does not want to swim in order to get wet. One cannot possibly swim without getting wet, but getting wet is not the object of swimming.

Nietzsche once remarked that only Englishmen desire happiness. Ordinary mortals want innumerable other things. But it has been repeatedly pointed out precisely by English thinkers that if I jump into the water to save a man from drowning, I do not think of my own happiness in performing the act nor of the pricks of conscience if I do not make an effort to save him. For the pricks of conscience are, as a rule, very mild, and the risk of drowning oneself may be very great. In rescuing the man I certainly do not want to save my conscience from the unpleasant pricks. What I want is plainly and clearly to save the man from being drowned. That I will have pleasure if I succeed, that I may eventually be happy about it, I do not deny. But I am positive that that is not what I wanted. In other words, pleasure is something in the nature of surplus value, something that is undeservedly given to the individual in excess of, and in addition to, what he really wanted. In some languages this idea is clearly brought out in the word itself. German *Vergnügen*, for instance, is composed of “*ver*” (away, beyond) and “*genug*” (enough), suggesting that pleasure is an addition, a surplus, something that is given beyond that which is enough.

## GRACE

This is not exactly identical but comes very near, I think, to what in the language of theology is called “grace.” If science and theology could be induced to make mutual concessions, and tried to understand each other’s frame of reference, a number of theological terms would be rendered less, or not at all, offensive to the scientific ear, and vice versa. At least, to my own satisfaction I have thus deciphered several theological words which only a few years ago seemed to me utterly fantastic and unscientific. One of those words was “grace.” With the help of Saint Augustine I was able to translate it into a language that conveyed a definite meaning to me.

I have learned from Augustine that in our performance of

duty we are, indeed, helped and assisted by something that is beyond our own control. That he calls it "God" is immaterial. We may call it "nature," for that matter. But the fact remains that there are innumerable "pleasures" which arise directly from the performance of duty—the feeling of moral strength, the satisfaction of righteousness, the pleasure of a triumph over something wrong, etc.—which help us to do our duty. In other words, from the divine point of view, our sense of moral obligation is comically unreliable. And thus God gives us "grace," i.e., assistance—of course, perfectly natural assistance—by supplying us with knowledge, reason, moral sense, pity, etc. Such "aids" seem to me exactly what Saint Augustine asks for in his soliloquies with God: "Order and ask for what Thou Wiltst, but cure and open my ears, so that I can hear Thee; cure and open my eyes, that I can perceive Thy winks. That quality of mind by which one strives after Thee, I ask Thee to give me. For that one only whom Thou makest seek Thee right, can seek Thee right indeed."

Grace does not annul our freedom. Saint Augustine is not a determinist, even though historically he was misconstrued as such by narrower minds, such as Calvin. Freedom of man is neither invalidated nor violated by the existence of grace. For "free will" itself—let us say, as a metaphysical apparatus—is a part of our nature, and in this sense is a gift of God. "The good, indeed," says Augustine, "shall receive their reward according to the merits of their own good will; but then," he adds, "they received this very good will through the grace of God." Free will itself is, in a sense, a kind of mechanism; for it operates, it is a kind of objective arrangement which produces results. Its existence is due not to us, but to the same cosmic plan that produced the rest of the creation. In other words, it is created and given to us by God. "Do the many precepts which are written in the law of God, forbidding all fornication and adultery, indicate anything else than free will?" asks Saint

Augustine. "Surely such precepts would not be given unless a man had a will of his own, wherewith to obey the divine commandments. And yet it is God's gift which is indispensable for the observance of the precepts of chastity." Thus "free will and God's grace are simultaneously commended," because "our turning to God is in itself God's gift."

#### THE RISE OF REASON

On the lower level of life, the pure animal desire is a good guide for interest and value. What is desired is sought after and, if obtained, usually proves to be of real advantage. The individual, no matter how intelligent, would not act in the interest of the species, or his own offspring, or even his own interest, if he had not been prompted by "desire," which is "grace" in its biological form. Hence desire constitutes an essential part of the biological mechanism by which, on a certain evolutionary level, "the things get done" and without which innumerable actions and functions absolutely necessary for the organism or for the group would have been neglected. On the whole, it is true that nature has supplied us with "wholesome and healthy" desires. Those wholesome and healthy desires are usually satisfied without much reflection.

This immediacy is reflected in the confusion which prevails in our axiological vocabulary. There is no clear demarcation line between the words expressing forms of desire and those denoting satisfaction. When we say in English "it was the king's pleasure . . ." we mean that the king has found a certain action desirable; this is clearly seen in the negative when we say that "it was *not* his pleasure . . .," meaning that he had no desire. In other words, "pleasure" here really means "desire," not "satisfaction," as in Latin *placuit senatui*. In German, *Lust* means "joy," "pleasure"; but in the phrase "*ich habe keine Lust*" it obviously means "desire." Both desire and pleasure are one "thing," relative manifestations of the same value

in the process of transformation from one set of advantages into another. But the value itself is by no means exhausted, or consumed, in those two forms. With regard to some other frame of reference it may take some unexpectedly different form and eventually turn to a disadvantage.

This happens when one desire interferes with another desire, which may easily occur without interference of social conditions and on purely biological grounds; when, for instance, the satisfaction of hunger may be counteracted by the anticipation of danger, as is evidenced in the behavior of wolves, or when the instinct for self-preservation may be conquered by the desire to protect the offspring, etc. On the higher biological levels, when tools begin to be used, such conflicts become innumerable. They separate the desire from satisfaction by inserting intermediate stages by means of which the satisfaction is brought about, or postponed, or even completely abandoned. This leads to the rise of intellect—the Promethean sparkle in us which opens up ways to innumerable values and leads us triumphantly from the invention of tools and the use of fire to all the achievements of modern technology and science. But ethically it brings nothing new.

#### WHAT IS ETHICAL SITUATION?

Social relations introduce into the realm of life a multitude of new conditions, that is, new frames of reference, with respect to which former biological advantages easily become disadvantages. Irritability and rage, biologically advantageous, under the conditions of social life become detrimental even to the individual himself. The instinct of self-preservation may counteract many useful and desirable acts of the individual during a hunt or in time of war. Uncontrolled childbearing under the conditions of economic poverty is a disadvantage for the individual and for the group. From situations such as these arise innumerable regulations, all derived from experience and

designed to divert the individual's energy to the channels advantageous to the group. The rage may be subdued by "self-control" or "wisdom." The instinct of self-preservation may be conquered by "courage" or by "shame." Sexual desire is regulated by "marriage," et cetera. At this social stage of evolution the individual's acts are changed into "conduct," i.e., an act involving "motives" and not directly determined by a desire. The individual's behavior acquires an *ethnic*, but not yet an ethical, character—"*sie bewahren ihr Leben zwar pflichtmässig, aber nicht aus Pflicht.*"

The individual is now compelled to act, not in the interest of the species (nature has solved that problem by endowing him with instincts and desires), but in the interest of a group. He undergoes a radical transformation; he becomes a social being. He is no longer dominated by his own instincts and animal desires. He begins to act unselfishly. At times he becomes absurdly, inhumanly unselfish: he inflicts various forms of pain upon himself, willingly submits to castigation, throws himself under the wheels of a sacred chariot. But however unselfish at times, he is still under compulsion. The compulsion is not necessarily in the manner of physical violence or crude fear of punishment. Very little is accomplished in society, even in civilized society, by punishment, and still less by physical violence, except in a destructive way. But society, like nature, has many subtle and delicate means of making the individual work in its interests. For example, by training and persuasion, which in civilized society take a highly complex form of education, and in recent times that of propaganda; by a system of rewards, many of which may be entirely illusory; also by sympathy, conventions, cults, et cetera. What else have the sociologists suggested? Imitation, development of economic interests and class consciousness, group solidarity and the feeling of loyalty—these are among the most obvious and powerful means to develop and secure in the individual the kind of char-

acter, or "soul," needed by society. Among the more subtle and yet by no means less powerful devices, gossip, games, and art may be mentioned.

Nature, now largely in the form of psychology, conscientiously helps the individual to adapt himself to the new conditions of existence, i.e., to make himself fit for the performance of social functions. In the process of adaptation to the new conditions, the individual develops a new "instinct" (if any real meaning is conveyed by this grossly abused and yet still popular word), the social instinct, which is merely a redundant expression of the fact that the individual develops a new set of emotions and desires which render him socially acceptable. Much more important than the vaguely conceived "social instinct" are the psycho-behavioristic formations commonly called "virtues," which are imperfect mechanisms to assist the individual in his feebly communal efforts. Virtues are, in this sense, half-baked instincts—embryonic efforts on the part of nature to render doing "good" automatic. If we could imagine a "virtue" having grown to the full size of an "instinct," moral conduct of the individual would be secured for all analogous cases.

But the situation is now different. Nature *has* to leave its work half-done; and this on account of relativity. For even instincts are not absolute advantages. Under changed conditions an instinct may be ruinous for the individual and even for the species. But what difference does it make, on the biological level? Millions of individuals may perish; many millions of others will be born to life. But under social conditions the situation is quite different. If a number of individuals perish as a result of an inflated virtue, such as over-strained patriotism or race consciousness, innumerable objects of great and rare value are thereby destroyed—objects which can never be replaced. Virtues, therefore, must be treated more discriminately. They are not mere mechanisms. They are only tools designed to assist the individual in his noble efforts to serve

society. But in using his tools, both physical and spiritual, the individual, as well as society, must be conscious of circumstances. To raise a virtue to the status of an universal norm means to confuse an ethnic situation with an ethical one.

A considerable part of the relativistic argument can be reduced to this confusion of terms. When the relativist speaks of the relativity of ethical standards he really means (as can be seen from his illustrations) those half-baked instincts and cultural habits which help the individual to get along in society and which are obviously relative to social conditions. In other words, he means "ethnical" when he says "ethical." The ethical law is one, and it cannot be written on banners to be carried by the mob in the streets. It is relative in a different sense, in which every idea is relative, but not in the vulgar sense in which food is relative to appetite. It may have different expressions, or manifestations, relatively to the different systems of logical co-ordinates with respect to which it is formulated. But it is one in all its manifestations, the invariant reality that constitutes the idea of universal mankind. Let us now see what it means.

The world of ethnic relations, which constitutes culture, brings the individual face to face with a new kind of reality—his family, his tribe, his class, his country, ultimately mankind as a whole—with respect to which he takes an attitude fundamentally—qualitatively—different from his attitude toward nature. With nature he lives in what we may call belligerent harmony. He feels perfectly free to take advantage of nature; and nature herself—with a strange generosity—provides him with innumerable opportunities to take advantage of her. He treats her as a means, as a field open for his exploitation. In other words, he is never called upon to choose between himself and nature. If he has any scruples—taboos—with regard to some natural objects, those scruples invariably prove to be of social derivation.

But with regard to society, however hostile he may feel toward it at times, he often feels a strange impulse to choose between himself and the group to which he belongs, in favor of the group. In this choice he is, again, greatly helped by nature. He finds within himself a number of social impulses, those half-formed instincts, called "virtues," which make it easier for him to act contrary to his natural desires. But "easier" is not "easy." Our virtues are weak. They are not instincts. They are like catalyzers: with their participation the reaction proceeds more rapidly and more effectively. But they are not the cause of the reaction.

What is the cause? I do not know; if I knew, ethics would not exist. One may find innumerable pseudo-explanations in philosophical literature. Those materialistically inclined would insist that the individual still acts in his own selfish interests, which are, then, believed to be the "cause" of his action. If he chooses to sacrifice himself for the benefit of society, even if he willingly submits to crucifixion, it only means, they say, that he has somehow reasoned out that he would be more unhappy had he not submitted to it. His conscience, you know, would bother him and make life miserable for him. But who makes such calculations except materialistic philosophers, and even those only in theory? The fact of sacrifice is there. They have to explain it somehow in their conventional way by reference to causes. Of course, it is very easy *to say* that there *are* selfish interests sufficient to explain the fact, because there *must* be; or that the strongest motive always wins, because we call that motive the strongest which wins. But it is plainly redundant. We have no means of scientifically estimating and measuring the strength of a "motive," except by results.

The idealist, on the other hand, endeavors to explain the fact by reference to "duty." Some individuals, you see, have a strong sense of duty, so strong, in fact, that it is sufficient to counteract any natural desire. Thus duty is conceived as a psy-

chological force, as a cause. But is this not just repeating the question under the cover of a new word? Do they know the mechanism of duty? How do they know that the sense of duty is "just enough" to conquer some concrete desire? Just because the desire is actually conquered? Or just because they need exactly that amount of force to produce the effect? All this is nothing more than a tangle of assumptions and tautologies.

But what explanation do you offer?—the psychologist would ask. It seems that what you are driving at is an explanation from "freedom." But is not freedom also just another word? It is, if employed as an "explanation." But why explain? Why not be purely descriptive, and hold to facts? Duty is a word corresponding to a situation yet to be described. But it turns into useless tautology if it is treated as a cause. The descriptive fact is that the individual—and this is his human stage, no matter on which planet he lives and what biological form he has—is sometimes called upon to make the significant fundamental choice between himself and a higher reality: his family, his people, his faith. He is not necessarily called to sacrifice himself; that is an extreme case; but he actually does choose at times to act, not in his own interest, but in the interest of something which is not he himself and which is contrary to his natural inclinations. That is an ethical situation. And I maintain—with Aristotle and Kant, I believe—that if the individual is completely determined in his choice by "causes" he does not act "voluntarily," and he does not know what ethical situation means. He acts as a machine which is made to produce "good" effects automatically. I do not think that such machines exist except in the imagination of some philosophers.

Man certainly is not such a machine. He is ethical in the proportion in which the machine is defective. In his efforts to be "good," i.e., to act in the name of a higher purpose, different from himself, he is helped by impulses, such as vanity, love, bravery, etc. But those impulses do not completely determine

his act; for they are merely auxiliary devices, not instincts. There remains a residue which is not psychologically or physiologically determined. And this residue, however minute, constitutes the ethical factor. This is what Aristotle calls "voluntary"; "roughly speaking," he says (*Magna Moralia*, 1187b), "that is voluntary which we do *when not* under compulsion." If everything in man were causally determined, if all his actions could be scientifically explained and mathematically computed from mental tests and statistical reports, human life would be much easier to deal with. The question is who would like to live it. All men would be at once transformed into a complex differential equation with  $n$  variables, and all we would have to do in order to live our lives happily and safely would be to integrate the equation, or—still better—to let someone else, presumably a dictator, do it for us. In the totalitarian or technocratic state such predictions could be published in the form of yearly forecasts, as we do with crops; and after reading such reports nothing would be left for the criminal to do but to go to prison in advance. The respective governments, then, whether communistic or totalitarian, would adopt the Calvinistic method of dividing people into those predestined for salvation and those who are foreknown for damnation and deal with them accordingly. Symbolic logic would provide rigorous answers for all possible questions. Those questions which could not be answered would be declared "meaningless." Free will would be not merely "meaningless" but absolutely unmentionable. It would be pronounced the greatest sacrilege, and one who had the strange impulse to utter the word would voluntarily go to the insane asylum. Voluntarily?—no! Nothing would be left for us to do voluntarily, for everything would be mathematically computed beforehand. Such is the materialistic paradise in which everything will be strictly regulated, not by God (who, of course, will cease to exist), but by statistical tables and differential equations.

This is all very good except for one trifling accident that must have happened on the sixth day of creation when God and the angels were tired and for a moment forgot their mathematics. When they were busy making man, something must have slipped in their materialistic computations; one of the differential equations had gone mad, and at that moment the will came into existence. Since that time, I believe—and of course that must have been somewhere in the depths of eternity, long before Time was created—there was something introduced into the world which has forever remained unpredictable. This tiny vulnerable spot in the mechanism of the will is, according to Kant, the opening through which metaphysical reality flows into the world of empirical existence. This is freedom.

But why “metaphysical”? Metaphysical in what sense? I am not in a position to discuss here Kant’s theory of freedom. I only wish to suggest that Kant’s escape into metaphysics in his *Critique of Practical Reason* was due to the Newtonian conception, or misconception, of physics which Kant assumed to be absolutely true. But nature itself is not purely or absolutely physical. It is affined, i.e., accessible to values, free or open for the axiological determination, which is like a call from the future and not like a driving force from the past. If one wishes to call it metaphysical, one will be obliged to regard “future” as a metaphysical concept. This is, of course, reasonable; for “future” does not belong to any of the existing sciences. It is plainly ridiculous to imagine “future” to be subjected to “scientific research.” It obviously can never be treated in a laboratory. In this sense, the idea of future, and with it of freedom, may properly be termed metaphysical. But one should not—by equivocation—put into the term more than is descriptively justified. And, if descriptively interpreted, “freedom” is much less metaphysical than the idea of “mechanism,” which is based on a vague and ambiguous notion of “cause” and “necessity.”

## NECESSITY AND FREEDOM

Necessity is a great tempter. It has a peculiar attraction especially for those academically inclined—for the professorial part of mankind. It flatters their rationalistic instincts. It appears (on the surface!) so orderly, transparent, and self-explanatory, so easily reducible to a presumably small number of lucid principles and “laws,” that it naturally appeals to the temperament of a scholar. He begins to feel his power in this world, and he really becomes a power. For necessity seems easily manageable precisely by means and tools which are at the scholar’s disposal, that is, by signs and symbols, by ideas and equations, by all those things among which the scholar, and only the scholar, feels at home. No wonder that he begins to worship his cherished child, “causal necessity.” It gives him prestige and power. Thus it happens that historically necessity associates itself largely with university life. In modern times it has become a specifically academic deity. But it never was on good terms with either poets or priests. The Church from the very beginning looked upon it with great suspicion. And not without reason. The Church scented around laboratories and experiments the whiff of diabolic brimstone. That was precisely the peculiar smell of necessity—the laws of nature rising against the law of God.

Thus “necessity” has attained a very high position on the modern Olympus because of its mathematical lucidity; because it seems so clear and rational. But is it rational? We commonly think that we “explain” a certain event, or occurrence by referring it to a given “law” according to which it happens; the event is thereby rendered necessary and—supposedly—intelligible. We seem to forget that what makes the “law” necessary is precisely the fact that events happen in a certain way. Hegel has once and forever shown the redundancy in the scientific concept of “law.” The scientist tells us that such and such a thing is no longer a mystery: it can be produced in the labora-

tory. Suppose we *are* able to *create life* in the laboratory. Is life thereby rendered less mysterious, less a miracle? If by miracle is meant magic, then, of course, it is no longer a miracle; and it never was. But is it not rather obsolete to make magic a philosophical issue? Miracle and natural necessity—concepts which are historically so far apart that the mere mention of one is irritating to the representatives of the other—are practically synonyms. The theologian calls miracle whatever he believes to be an ultimate fact which he has to accept without being able to understand how it works. The materialist refers to natural necessity whenever he finds himself in the same predicament, i.e., when he is confronted with what he calls brutal fact which he is not in a position to reduce to anything “simpler.” Both are talking about practically the same thing, referring it to different mental frames. Inability to reduce or to understand, that is, the irrationality of the subject matter, constitutes the invariant behind those frames. Heavy things “necessarily” fall and planets “necessarily” revolve around the stars on account of the “law” of gravitation. But is the law of gravitation itself “necessary”? It is *found* to have a certain mathematical form, and that is what makes it appear necessary in our eyes. It could very well have a different form. The modern mathematician is in a position to construct a great variety of perfectly consistent worlds, each having its own paths of specific necessity. There is no intrinsic necessity in any law of nature. There are many systems of “necessity” possible. And, as far as our knowledge goes, it is entirely accidental which one of them rules over the world. Hence we are obliged to agree with Hegel’s paradox: Necessity is wholly contingent. It is *found* by experience to be what it is, and, probably, it is *bound* to be what it is—just as the color of gold is found, and bound, to be yellow. The best we can do is meekly to “meet the noise of the Almighty engine.”

If this account of “necessity” is reasonably correct, freedom, in its negative sense as a noncompulsion, is a fairly empty no-

tion. It is not a statement of truth but a correction of error. If cause is a fiction, which it largely is, then freedom from cause simply means freedom from certain pseudoscientific notions, just as atheism means nothing but freedom from certain pseudoreligious notions. In Russia, I believe, the idea of freedom could easily be incorporated into the official philosophy of Marxism by a special decree of the Soviet Government declaring "cause" to be a bourgeois superstition—which would be not very far from the truth. The gesture would obviously have great value for purposes of propaganda. But practically, of course, it cannot be done. The political geography of philosophical beliefs in our day is very paradoxical.

The descriptive concept of freedom, however, is by no means purely negative. It suggests not only "freedom from," but also "freedom *for*." And this latter meaning is much the more important. Descriptively, to be free means to be open or accessible to values, to be fit for axiological determination, which means the determination of the present by the *future*. This type of determination is commonly believed to be unscientific only because it is wrongly interpreted as a sort of pull exercised by the future upon the present, as an inverse force or a cause with a minus sign, to which reality is subjected in a direction opposite to the past. Such pull, of course, does not exist. Future is not a storeroom of things which lie waiting for us in a distance and which hypnotize us to move in their direction. Such geometrical conception of future constitutes the fundamental fallacy of determinism, which I have never found so clearly exposed as in the modern philosophical literature of Sweden—so clearly, in fact, that it seems strange it could ever present a difficulty. The "things" in the future, according to this view, have quite a different character, a different mode of existence, from the things in the past. The former are not really things; they are values whose mode of existence rests with the creative dynamism of the will. Determinism, in this sense, is not even a theory;

it is a psychological blunder which confuses the character of things in the future, to which it secretly gives the quality of space, with the character of things in the past.

Following this trend of thought we may define axiological objectivity by reference to the future, which is just as much a part of nature as is the past. But in this scheme we shall guard ourselves against geometrical interpretation of the future as a mere continuation of the past. It would be much more to the point to regard past as a mere anticipation of future. For in the innermost scheme of things the past must be so constructed as *to be able* to produce a certain kind of future. For instance, the atoms in a burning star—a seemingly aimless multitude of mechanisms—must be so constructed as to be able to produce planets, life, consciousness, culture, and all the things pertaining to the tragic destiny of mankind. I do not mean to say that mankind is the ultimate goal of creation. It is more possible than not that man, as Nietzsche has suggested, is merely a bridge, and hence himself only an equation of transformation—a servant of God, as Christian theology has expressed it. But whether ultimate or not, “we” *were* the controlling factor in the past, “we” *were* (and we still are) shaping the destinies of the stars.

This is not a wild hypothesis. It is a plain statement of fact, a purely descriptive phenomenon. For time is anticipation and providence; it is the fulfillment of all things, and their doom; it is the solution of the controversy between determinism and freedom; it is periodicity and rhythm, both evolution and stagnation, life and death. It is the realm of all ends, and the ultimate control of all ways, the great Tao of wisdom. A moment to a moment is not like a bead to a bead on a string. They are not external fragments indifferent to one another, by adding which time arises as a whole; for they have meaning as moments only because there is time in-between. It is from “time” that moments arise, not time from moments. And in order to

understand the nature and significance of a moment we have to know the nature of the time in which it is a moment. As a breathing-spell in a whirlwind of tireless activity a moment chokes and evaporates into nothing when, released from its natural environment, it is marked down as a number in the physicist's laboratory. Numbers do not kill, do not even falsify time, as Bergson suggested. They simply "don't belong" to real duration. They are intelligible only in a context, say, as an initial stage of a time pattern, such as an experiment, a lecture, an operation, or what not.

To act by anticipation is to act freely. Hence freedom belongs to the nature of time just as much as necessity does. In a deeper sense, necessity is a kind of freedom. It belongs to the cosmic plan, and is a vital part of it. It has been recently pointed out that anticipation is possible only in a thoroughly determined, and *causally* determined, world. For if the same cause is allowed to have different and unpredictable effects, the outcome of an action can never be anticipated and free action will be rendered impossible. Hence necessity (mechanism) is only a tool for freedom: "*Ein freier Wille mit finaler Wirkungsweise ist überhaupt nur möglich in einer durchgehend kausal determinierten Welt.*" Exactly the same idea, within a slightly different frame of reference, may be expressed thus: The past does not weigh us down; we can only stand on its *firm* ground; "*det förgångna trycker oss icke; vi lott stå på dess grund.*"

I do not think that these statements are in contradiction with what has been said before about freedom being present only where mechanical causes fail to determine an act. Mechanical causes never determine the act completely. They only determine it causally; and that is precisely why they are called mechanical. But the mechanism itself is a part of axiological determination which emanates from the future and is just as much an objective feature of time as is the past. We shall not consider the question as to how this determination is effected

prior to the emergence of conscious beings, and particularly prior to the appearance of man, in the world. This is a question for metaphysics. But ever since the sixth day of creation, i.e., since the emergence of man in nature, the determination of reality by the anticipation of future has entered upon a new, an ethical, phase. It has become the destiny, or the mission of mankind in this world: to mold reality in accordance with the demands of values. Man accomplishes this function without any element of mysticism in a perfectly natural way: by the vision of the future, by anticipation, by freedom. This is the meaning of the dogma of Incarnation. God becomes man. Heaven descends upon earth. Heaven literally becomes earth. Man is a cosmic crisis.

Freedom, in this sense, is the highest and the only ethical law, which identically repeats itself, variously expressed and as a rule differently named, in all ethical codes. If need be, the highest law of morality may be expressed in the form of a norm: "Be free." Or, negatively: "Do not be a slave to forces which tend to compel you to act as *they* command." Those forces may be disguised as our own desires and appetites; for our empirical self is nothing but a bundle of adaptations. We must therefore never forget that our own cravings and longings, instincts and impulses, only repeat—in a voice intelligible to us—the commands of nature. We should not unconditionally yield to that voice, and not let ourselves be exploited even by our own desires without free consent. For we have the strength to withstand any amount of temptation. And that strength is our freedom.

But freedom is not necessarily to be conceived as a command, or norm. It has been, I think, exhaustively shown in modern literature on ethics that norms are derivatives of reality. A command has sense only if it is addressed to one who is capable and has the strength of doing what is commanded. In other words, it presupposes a certain disposition of character.

Freedom as a command is also based on character—the character. For it is simply an expression of the fact that there is such a thing in the world as character, namely, ability to control one's desires and impulses, strength of personality sufficient to disregard the dictates of flesh and the allurements of prospective pleasures. But "ability" and "strength" are misleading words. They are too strongly saturated with the flavor of "cause," which must be removed from their meaning if one wishes to understand them properly. Freedom reveals itself, or behaves in the empirical world, *as if* it were a cause, or a force. But this is purely metaphorical. Its physical impact is equal to zero: "My kingdom is not of this world." And yet "this world," this plain physical world, yields to freedom, i.e., allows values to take place, which could hardly happen in a strictly mechanistic universe. What else is progress, evolution, civilization, if not a gradual, but steady, yielding of nature to the gentle and wholly ephemeral pressure of values? As it is written in the Book of Tao: "There is no force which could not be overcome by weakness." Or, in the words of Saint Paul (II Cor. 12: 10): "when I am weak, then I am strong."

In Christianity and Taoism this idea is expressed, perhaps, more clearly than elsewhere. But the vague presentiment of it is common to all ethical systems. In the Upanishads the divine source of reality, Brahma, is identified with the "unlimited freedom":

I am the unlimited freedom,  
The first-born of the world-order, .  
Earlier than gods, in the home of immortality;  
Who gives me away, he indeed has aided me;  
I, who am the food, consummate the eater of food.  
I have overcome the whole world.

Freedom is no longer treated as a command. It is conceived as the source of reality, which it remains throughout the ages of speculative philosophy, through Fichte and Schopenhauer,

till our day. It is the *invariant* behind the innumerable manifestations of value in nature and in man. When it is manifested in man, it is called ethical law. The series of such manifestations constitutes ethical life or, on a larger scale, ethical evolution. As an invariant it cannot be identified with any single member of the series, not even with one lying in an infinite future. The "things in the future" are neither things nor forces. They are values. And their connection with nature is, perhaps, the only reason why nature has future. They constitute the essence of futurity, and are merely another word to indicate the mode of existence characteristic of the future. Linguistically, future may properly be regarded as a synonym of value, perhaps somewhat more abstract; for it includes both values and disvalues. But the mode of existence denoted by futurity is the same as the one denoted by the words "value" and "disvalue." Both are located "in time," if you wish. But they are in the *future* time, remaining *forever* in the future, i.e., in futurity.

The "things in the future"—values—have no definite outlines. As realities, they are not shapeless, but blurred. Their concrete outlines depend upon the circumstances under which they are called upon to operate. And, as we have amply seen, they change their concrete outlines when the circumstances are changed. But this change is not an arbitrary operation. It is not subject to the individual's caprice and to the individual's control. The individual may be free in choosing the direction in which to move; but he is not responsible for the existence of the direction which he chooses. And if the direction has once been defined under a concrete set of circumstances, it retains its identity under all circumstances, even though under different circumstances it is differently defined. Hence the identity of a "thing in the future" is not the identity of a single form, act, or event but the identity of a manner by which one event is transformed into another, this into a third one, and so forth. It is the identity of a tensor, or a group of transforma-

tions. And it is real precisely in the sense in which the fundamental tensor of space-time is said to be real. It indicates the basic structure of the axiological universe—the  $ds^2$  of the geometry of values.

## ETHICAL TENSORS

Every ethical act, however infinitesimal, like differential in space, *has* a structure. It may be said to possess a specific “curvature” which determines to what kind of axiological space it belongs. For the tension which accompanies a concrete desire may be resolved in many different ways, of which “freedom” presumably is one.

An act *may*, for example, proceed, and to a very large extent every act does proceed, in a mechanical manner. It shows, then, causal structure. With the exception of very few obvious and superficial factors, we do not know how those causes work. But we assume that there are objective causes, and that every step, every fragment,  $ds^2$ , of the act is a partial manifestation of the fundamental law of cause and effect. On such an assumption—the mathematician would say, in this kind of space—the structure of the fragment depends upon the kind of theory that we adopt with regard to causal relation. The value of  $ds^2$  will be the function of that theory. But, on the whole, in this kind of axiological space (we may call it “causal” or “naturalistic”), human actions and human character are considered on a par with other natural objects (Hume, II, 155).

Every theory can be symbolically expressed as an organized group of propositions. It can be represented as a matrix of propositions:  $a_{11}, a_{12}, a_{13}, \dots, a_{21}, a_{22}, \dots$ , or briefly (using the tensor notation),  $a_{\mu\nu}$ . Every differential of action, then, is a function of those elements, just as every linear element in space-time is a function of the coefficients,  $a_{\mu\nu}$ . Those coefficients—or, in our case, propositions—define the structure of the element as a causally determined complex of events. Every

$ds^2$  in such a world shows the same invariant structure, namely, the one defined by the theory.

But, like physicists who are desperately groping for the fundamental tensor of space-time, we do not know what kind of structure the ethical events have. It is all a matter of assumption or, as Kant used to say, *ein transzendentaler Grundsatz*. The naturalist (especially if he is of materialist variety) assumes that the structure is causal. He may be right. Then ethics does not exist. But the naturalist is certainly wrong in one respect! He is, despite his assurances to the contrary, an absolutist. He believes that the causal structure is the only possible one or, with Hume (II, 154), that "there is a general course of nature in human actions, as well as in the operations of the sun and the climate." And most of his objections can be reduced to that unwarranted belief. There are other fundamental structures logically possible, just as there are innumerable geometries logically possible. None of them can be apriori singled out for special distinction. None is absolutely true. The decision depends, not on us and our intuitional preferences, but on the kind of fundamental tensor that lies at the bottom of ethical events.

The tension which constitutes a concrete desire may be resolved in a biological manner, which is quite different from the mechanical one. The structure of that type may be characterized as "teleological" or "vitalistic," depending on certain technical differences. I shall not insult my judges by going over again the arguments which are well known; I may only refer to such eminent authorities on the subject as Driesch, Haldane, even Pauly with his *Pan-psychismus*, not to mention the more recent contributions to "vitalism." Whether their views are absolutely true or not is here beside the point, as it would be beside the point to discuss whether some specific form of non-Euclidian geometry is absolutely true, or not. It may be objective, without being "absolutely true."

Still another, thoroughly consistent, way of describing the linear element of action,  $ds^2$ , rests with various theories of "freedom." An act may be carried out even though the "causes" may fail to be present in their totality, which is regarded as the only condition sufficient to *explain* the act. The agent may *disregard* the impulses, however strong, which prompt him to proceed in a certain direction, *out of consideration* for someone else, for whom he may have no particular feeling, or who may not even exist; such, for instance, as future generations, for whom much is being deliberately done at all times. That under such circumstance "consideration" itself acts as a cause which balances all other causes is an empty statement which not merely remains unproved and beyond verification but is practically meaningless. For the causality of "consideration" remains entirely obscure. There might be, of course, some feelings and habits connected with the phenomenon of "consideration" which would pull us in the direction opposite to the pull exercised by impulses. But, to be sure, that pull is very weak, as everyone knows from experience. We should then be obliged to reiterate Lao Tse's paradox that there is no force which cannot be overcome by weakness. To say that good impulses must be strong *because* they eventually overcome the combined force of all other impulses is either a metaphor or a plain case of *petitio principii*. We know that what is called "consideration for others" may determine the result; and in this sense—metaphorically—it has a power, and a very great power. But we have not the slightest idea as to how the act is *produced*, i.e., how the power of consideration works upon us. And if we knew, it would not be the same act. Hence our assertion that it is produced by reason and consideration is a meaningless jumble of words. Cause and effect are companions and servants of will, but are not identical with its "mechanism." "Matter," says Plotinus (*Enneads* II. 4. 12), "furnishes the foundation for action, in so far as it is *in action*, but *into* the action itself it does not go."

Geometry may very well be a product of our psychological organization; but nothing is *proved* in geometry by reference to psychological laws, which remain entirely alien to geometry's own intrinsic legislation. Similarly our actions may be produced by "causes" (how, nobody knows); yet nothing is ever undertaken for the sake of causes, and nothing is ethically validated by reference to causes or impulses.

But even if one yields to impulses, one must disregard something else: the voice of duty, of conscience, of *consideration*. Impulses have no power over one without his consent and approval. The same mysterious residue which helped the individual to disregard his impulses out of consideration for someone or something else constitutes a necessary condition for now disregarding someone else and following his own impulses. In other words, one cannot betray his freedom of choice without freedom of choice. For "he who gives me away has aided me." Moreover, the approval necessary for a justification of impulses is intellectually by no means such a simple affair. It makes the individual brood and brood—through centuries. And the residual precipitate of that brooding is left in historical life in the form of innumerable hedonistic theories of morality, the net outcome of which is to convince the individual that he is justified in doing whatever he likes, that is, to give him the appearance of virtue even in vice. Hence the individual must be free even to remain an egoist.

When an act displays such properties as have just been described it is said to be free, or to have ethical structure. This structure is independent of the co-ordinate system employed. That is, if the act be transformed to another set of conditions or—which is the same—carried out under different circumstances, it will have to be modified *to remain ethical*, just as the components of a physical vector have to be modified if the magnitude of the vector is to be computed from data obtained within a different frame of reference. The modification which

the act undergoes in the process of transformation is not an arbitrary one and does not depend upon the point of view of the agent, nor upon the circumstances, but upon the invariant structure which makes it ethical by definition. The situation is entirely analogous to the one we find in physics. The  $ds^2$  of any particular curve, or path, is a vector which remains invariant with respect to all linear transformations. But the reason for its invariance is found to rest with the particular form of space-time in which it is a vector. The structure of space-time is obviously not a vector. Its invariance is of a higher order, and depends upon the nature of the coefficients,  $a_{\mu\nu}$ , in the fundamental equation of the linear element. But it is an invariant; for the coefficients, as we know, constitute a group which obeys the characteristic law of transformation defining tensors. Hence it is a tensor.

Similarly, values—which are ethical vectors—are possible only within a certain set of propositions defining what value is. Thus, for instance, the nature of value may be defined as a specific form of causal relation; or it may be defined on the basis of freedom. Which form, or structure, is real we do not know, as we do not know what kind of space-time corresponds to physical reality. Such uncertainty, however, does not justify the assertion that space-time is a subjective phenomenon. Any form of space-time is objective, if it is consistent; and one of those forms must be real. Einstein's equation of gravitation:  $G_{\mu\nu} = O$ , which defines a specific form of space-time, is, of course, merely an approximation. But no one, I think, would seriously hold it subjective just because (possibly!) it is not exact. The utmost one can reasonably say is that it is subjective *to the extent* to which it deviates from the "real" state of affairs. We do not know the "real" state of affairs. But we *do* know that the deviation is exceedingly small. For a particle moving in a field described by that formula will behave as though it were a planet revolving around the sun, the motion

agreeing with the theory to the order of accuracy far greater than that of the Newtonian theory. By solving the equation,  $G_{\mu\nu} = 0$ , Einstein has demonstrated that the formula describes a possible state of the world which might be met with in nature under suitable conditions. By deducing the orbit of planets from that law he has discovered how that state of the world would be recognized observationally if it did exist. And in this way he was justified in concluding that the space-time described by his law is the one which, with a high degree of approximation, corresponds to our physical and astronomical universe.<sup>4</sup> And that is all that can be reasonably required of an objective theory. It is all that objectivity means. "If you assert that vice and virtue consist in relations susceptible of certainty and demonstration . . . , you run into absurdities from which you will never be able to extricate yourself" (Hume, II, 229).

Why should more be required, or even expected, from ethics? Absolute certainty is not a guaranty of objectivity, as we are commonly believed to be most certain of our own subjective states of mind. On the other hand, uncertainty is not an argument against objectivity. Ethical laws may very well be objective, even though we shall never be able to "prove" them with mathematical precision. The comparison to physics is, I think, more than a mere analogy. The fundamental idea of invariance and structure is common to both fields. That in physics we are in a position to express this idea symbolically and quantitatively is, of course, a great advantage. But the convenience of mathematical symbolism does not make it logically different from the analogous cases in other fields. If it is an analogy, it is so, not in a poetic or metaphorical sense, but in the strictly logical sense in which analogy is legitimately used in science—a sense in which Darwin, for example, makes an ample use of it.

<sup>4</sup> Sir Arthur S. Eddington, *The Mathematical Theory of Relativity*, p. 87. By permission of The Clarendon Press, Oxford.

ETHICAL VECTORS

The fundamental ethical law, whatever its verbal formula may be, is something in the nature of a tensor. It defines the structure of ethical values independently of any particular coordinate system that may be employed in the operation of valuation. So far it is wholly objective, and entirely independent of any concrete occurrences or circumstances of life. That is why Kant has called it "formal." It is, for that matter, not necessarily apriori. It only defines, whether from experience or otherwise, the structure of the value *as such*, just as the fundamental tensor defines the structure of space-time without specifying any particular direction in it. The situation can briefly be expressed by the formula:

$$a'_{\alpha\beta} = ia_{\mu\nu}$$

which defines the invariance of formal structure, or the general texture of the axiological space. But structure is meaningless, unless there is something constructed according to it. Thus the structure of space-time would be meaningless if there were no "intervals," or vectors, which could be constructed in it. Obviously, such intervals in their concrete physical specification cannot be *deduced* from the tensor. But neither is the tensor deduced from them. It must *fit* the text of experience, but it is not deduced from experience. It is an assumption, and will have to remain an assumption, no matter how much evidence may be accumulated to prove its validity. That is why Kant called it *Grundsatz*, the idea of which is fundamentally different from that of "generalization."

Similarly in ethics. The fundamental law of ethics, whatever its content, is an assumption which defines the idea or the essence of value as such but not of any particular value. The material content of ethical behavior can never be deduced from that idea. The material content is something in the nature of  $ds^2$ . It is a vector. It defines a direction for a possible and pro-

spective behavior. As a direction it cannot be conceived apart from any circumstances; for it is a path through circumstances. Within any given set of circumstances it offers some specific advantages, which are different for each set. Those advantages change from one set to another. But they do not change chaotically; they do not depend on our good will or the caprice of the moment. What is of great advantage in one situation, may be of no avail, or be positively a disadvantage, in another situation. "We" have nothing to say about it. "We" must accept it as it is. But we know that, if a function (in this case a set of advantages) can be transformed to a new frame of reference, and becomes uniquely determined in the new frame, that function is said to define an invariant. The possibility of transformation constitutes its objectivity. Hence advantages, being thus transformable, may also be said to define an invariant. The invariant constitutes their value; and, being independent of the frame of reference, it is objective. The situation can be conveniently summed up by the equation:

$$a'_{\mu} = ia_{\nu}$$

#### OBJECTIVITY OF ETHICAL STANDARDS

This, I think, settles the question of objectivity of ethical standards. Ethical standard is a norm set up as a model or example for prospective conduct. But an example can be formulated, and has a definite meaning, only within a given set of conditions. If it is called upon to function under a different set of conditions, it has to be modified. We have sufficiently shown that axiological modification is not a haphazard affair. Man cannot excogitate, or in any way prescribe, the advantages and satisfactions accruing to him from following a given direction of conduct under changed circumstances. He finds the advantages prescribed and rigorously determined, provided that he wants to follow *the same* direction. It is precisely the sameness of direction which is guaranteed by the necessity of trans-

formation. Only because the standards must be changed if they are called upon to guide us under different conditions, and because the change is found to be rigorously defined and not invented or excogitated, we call the standards objective. Hence every standard, if it formally satisfies the condition of being ethical *in any sense*, that is, under the assumed validity of any kind of axiological tensor, has an objective factor. For the standard is, then, a bearer of value *in that sense*, i.e., within a given axiological space. My conclusion is that it is precisely relativity, defined as invariance in transformation, which renders moral standards objective and guarantees their validity as standards of value.

Let us express this conclusion in a less technical form. Standard, popularly speaking, is something that is written on a banner; something that we "stand for," or "stand by." Indirectly it means the banner itself—a flag, for instance—provided that we know what is supposed to be written on it. Hence standard is an expression, a manifestation of value.<sup>5</sup> Whether it speaks to us by words or by merely "flapping and fluttering in the air," is immaterial. Logically it is a phrase. Ethically it is a commandment.

Now we know that a phrase has a meaning only with respect to a certain frame of reference, and that commandments can be executed only within a given set of conditions. If that makes the standards subjective, then they are subjective. It would not help to cover up and try to conceal this subjectivity by inflating the standards and pretending, like Shavian Brit-

<sup>5</sup> The nearest approximation, in modern literature, to this distinction between "standards" and "values" is Pareto's distinction between "derivations" and "residues": "In trying to get back from derivations to residues, it must not be overlooked that a given residue, *B*, may have any number of derivations, *T*, *T'*, *T''*, . . . , that are readily interchangeable. . . . To replace *T'* with *T* is of little or no avail as regards modifying social forms, since the substitution has no effect on the residue, *B*." (Pareto, *The Mind and Society*, § 2086). The readers, however, who are familiar with Pareto's work are warned against too readily identifying his position with that expressed in this book. Pareto's terminology, as well as his point of view, is too strongly positivistic, and perhaps "materialistic," to suit the present author.

tanus, that the customs of our tribe and island are the laws of nature. A standard can manifest itself and be intelligible only among a number, however large or small, of properly conditioned individuals. In this sense it is subjective. “

That does not imply, however, that our standards are subjective in every sense of the word. From the fact that they change with different conditions it does not follow that they are “produced by our mind” and are therefore “arbitrary.” For our mind is itself “produced” and determined by the things we “stand for.” We have seen, for instance, to what extent music determines and defines the musician. In this sense it may be true, and, I think, in our days it is generally accepted as true, that man’s consciousness depends upon and is a function of the form of his social existence. But the reverse is equally true. Even our economic standards depend upon what kind of “soul” we have or have acquired. The dependence is mutual. For “consciousness” is one of the conditions participating in the total change. As long as public consciousness remains undeveloped, many standards are meaningless. In order to “raise” the standards we have to change the public consciousness; and in order to change consciousness we must alter the conditions of our social existence. Stubbornly to adhere to the old standards when the conditions have been changed is foolish. And yet that folly seems to be inherent in human history. It constitutes the essence of what every new generation calls proudly: “our time.”

If we could logically change our moral standards (without destroying their “morality”) to suit different conditions; if we could only see that under the changed conditions our old standards practically have no meaning, and have already been changed, whether we wish it or not; in other words, if there were no friction between our standards and the conditions under which they operate—history would have been spared many a painful tragedy. But, unfortunately, there is an inter-

mediate link between the two: our vision, which is never perfect. We do not "see" the change of our morals at once. It takes time—an absurdly long time—for us to realize that we are merely repeating old words without attaching any meaning to them. And we are determined to preserve the standards by sacrificing the values which are behind them. We eulogistically call it "conservatism."

But the fact of friction, the existence of that specific incongruity between the old words and the new standards of value, is in itself a testimony of their solid reality. Precisely the experience of change in our ethical views, our capacity for moral development and moral evolution, far from being compromising, is the best and the only guaranty of ethical objectivity. For our moral standards change, not chaotically and not arbitrarily, but in a predetermined and orderly fashion. "We" have to *accept* their change, often with painful reluctance and after a long and stubborn struggle. We are *confronted* with those changes, as we are confronted with movements in the physical world. Within a new set of conditions our standards must be altered, and we have nothing to say about it. We cannot ex-cogitate their transformations or dispose of them by "arbitrary definitions." We must *discover* in what direction they *had* to change.

Since our moral standards change, depending on the conditions under which they are called upon to operate, the impression is easily produced that they must therefore be regarded as induced or caused by those conditions. It is easy to take refuge behind words which sound familiar, especially when they are taken from the imposing arsenal of scientific terms. "Cause" has many meanings which I am not in a position here to enumerate. Most of those meanings are illusory and empty—naïve and presumptuous transformations of its physical meaning, which in itself is far from being clear and precise. We can say, of course, that the standards change *because* the conditions are

altered. But this colloquial "because" has an entirely different meaning from the other "because," as when we say that the billiard ball changes its direction because it hits the other billiard ball. The moral principles change, not because the social and economic conditions *compel* them to change, but because under different conditions they logically mean different things and practically call for different patterns of behavior. If we disregard the difference, we fall into an ethical error, and keeping the letter of morality become grossly immoral in actual fact. It is as in analytical geometry—the same point (5, 3) *means* (6, -4), if the origin of the co-ordinate system is shifted one unit to the left and seven units up. The point remains identical; only its expression is altered. And if we disregard the alteration we either speak of a different point or we commit a mathematical error.

These results are independent of the type of ethical theory we hold. "Ethical theory" is a body of propositions which defines the sense in which the word "ethical" is used. This, we have seen, is comparable to the sets of coefficients,  $a_{\mu\nu}$ , which in Riemannian geometry define the sense in which the word "space" is to be used. Different ethical theories, accordingly, define what we have called axiological space, i.e., the medium in which ethical standards are assumed to be operating. No matter what kind of a medium we choose—the perfectionist's paradise, or the materialistic playground of libidos and inhibitions, or the hedonistic atmosphere of supreme pleasure—in any case we cannot leave our standards untransposed *if* we wish them to operate under a new set of conditions. And within any given set of ethical assumptions the transformation of standards proceeds, not according to our arbitrary whims or wishes, but according to their own inherent structure, which remains objective and invariant.

## IV. *A foreword to Parontology*

“ . . . . it shall be required of this generation.”—Luke 11: 51

### THE SCIENCE OF THE PRESENT



THE CONCLUSION at which we have arrived at the end of the last chapter shall now be tested by application to the specific set of conditions that we call “our age.” The question is: Can an objective moral standard be set up in *our age*? It may seem that the question has, in principle, been already answered. For if all standards are objective, as I believe I have shown on the foregoing pages, our present-day standards cannot claim exemption. Why bother about specific cases when the problem has been solved “in general”? This would be the Germanic way of settling the question, against which the American mind rebels. I do not think that that would be a fair interpretation of the noble intention of those who offered a prize for answering the question as announced. For, as I take it, the question was offered for public discussion not only for abstract theoretical but largely for practical and humanitarian reasons. Our present-day standards may be objective—but what are they? The emphasis rests with “our age.” What is the objective direction in which our age is to move? Shall I be so presumptuous as to define it “in objective terms”? Could such a definition be more than a private opinion?

By plotting curves the physicist does not express an opinion. His results, to be sure, are in the nature of approximation; but they are not opinions. Approximation and opinion are—epistemologically—incommensurable with one another. Similarly,

by projecting values into the conditions of "our time" we obtain results which are far from being absolutely certain; but they are not for that matter "mere opinions." The results will be uncertain in proportion as the conditions remain undefined, be it for personal or for objective reasons. Hence uncertainty in matters of application does not in the least invalidate our fundamental claim of ethical objectivity. The validity of the application will depend upon how far we know and how well we understand the conditions of "our time."

The science of the present—we may call it parontology—is one of the most neglected fields of knowledge.<sup>1</sup> Greeks had it. They used to call it "history." For history to them was not what it is to us, the science of the past. To them it was largely the analysis of the present, a descriptive and critical narrative of what they have "witnessed" themselves, "seen" with their own eyes (ἴσ- = *vid-*), or gathered from other eyewitnesses. No other material was regarded as legitimately "historical."

In offering a foreword to parontology as a special discipline I do not propose to follow the example of the Greek historians. I am aware that we are more than abundantly supplied with literature dealing with the "present situation" in all its aspects. We have ethnology, political science, literature; we have innumerable discussions of communism, fascism, Americanism, and what not. But we do not have parontology as a separate discipline. We do not possess a field of knowledge which would deal with all those phenomena in a synthetic fashion as expressions of "our time" and which would be in a position to give a comprehensive and impartial definition of what is meant by this fashionable combination of words, "our time."

If parontology ever comes into existence, it will have to be a *philosophical* discipline, not a special science. That is, like

<sup>1</sup> The term "parontology" (παρόντα, the "things in the present," and λόγος, "science") was suggested to me by Professor Hermann Fränkel, of Stanford University (formerly of the University of Göttingen).

philosophy, it will have to treat special sciences with respect, but without reverence, and to make no dogmatic issues of scientific methods and facts. It would be futile for a new discipline to explore the territories which have already been claimed by special sciences; nor would it be sound to hope for a prospective discovery of a new body of facts to be presented to the reading public under the title, "The Story of Our Time," and intended with the air of scientific reliability to teach us the truth about ourselves. Like the philosophy of history and the philosophy of nature, parontology must formulate problems of its own, beyond what is furnished by statistical reports and renewed phrenological measurements to prove racial superiority. For science itself, especially when it is practiced by the police department, is a phenomenon of "our time" and must be here treated as a fact, not as a guide.

#### THE BASIC CONFLICT OF "OUR TIME"

Perhaps the present is nothing else but the manifestation of friction produced by the past grinding against the future. This definition, admittedly figurative as it is, contains an element of truth. Nothing but a poetic metaphor if applied to physics, it becomes much more than a figure of speech with respect to history. We have seen at the end of the preceding chapter that under the changed conditions of life our moral standards must be re-formulated, and that precisely the rigidity of re-formulation (which is independent of our will) is the best, perhaps the only, guaranty of their objectivity. But our social consciousness is slow. Philosophers and poets, to be sure, have their visions and once in a while vaguely discern the vectorial directions of the moving values. But in the vast majority of cases we remain blissfully ignorant of the conditions as changed and live under the illusion of the dear old words which have long ago become completely emptied.

But empty words constitute a great social force. They con-

trol the army, the police, the church. Around them gather together the powers of conservatism and slushy idealism supported and advocated by those elements of society that find an easy and comfortable existence under the protective cover of antiquated phrases. Thus the old formulas, which we still regard as holy commandments, get into the harness of politics, and begin to serve the powers to be. They become "standardized." The empty words establish themselves comfortably in our governmental institutions, in business, in the schools. They preside at our political forums; they resound like a hollow echo in our churches; they creep like moths into our textbooks. They are shouted with loud vulgarity from the housetops in the market streets of our cities and are taught with Jesuitical subtlety from our university chairs. Thus emptiness becomes a power and begins to lead a socially organized existence.

But why do words become empty? Because they no longer fit the trend of the time; because the conditions under which they were called upon to operate have changed. In this manner there develops within a given cycle of civilization a real and not at all imaginary friction between the old, standardized words, representing the past in its vanishing glory, and the actual conditions of life which are anticipations of the future. Of that friction the present is born. For the combat of realities against the empty words and standardized phrases defines the locus of points where time becomes "our" problem, becomes "our time." The incongruity between what has passed into the past and what is bound to arrive in the immediate future constitutes the pain of existence, the everlasting "is" and "now" of human history.

In the terminology adopted in this book I would say that "our age," no matter to what historical period it belongs, is always characterized by the network of inconsistencies and incongruities which develop between the "frame" and the "value." We have seen that social conditions at large constitute

the frame of reference for the innumerable values to be cast upon them. A value projected upon a given set of conditions results in a certain commandment as to how to behave under those conditions. Such commandments constitute our standards of value. In formulating the standards we are naturally and primarily interested in the results, that is, in the verbal and conceptual expression of certain patterns of behavior—for example, honesty; and we say, "Thou shalt not steal." But in our eagerness for results we easily forget that the words of the commandment have meaning only with respect to a certain context of circumstances which, in our particular illustration, include a definition of "property." Still using the Biblical frame of the time of Moses, as most of our businessmen do, we conscientiously abstain from coveting our neighbor's house, or ox, or ass, because in the framework of our economic ambitions oxen and asses no longer play any real part; but we think nothing of advertisement, of "puffing" a product, of cutting wages, of inadequate hospitalization. In our days one would not take advantage of another man by stealing his ox or his mule; but one does not hesitate to drive a farmer from his home by raising the rent or to take advantage of hundreds of thousands of minor investors by obtaining a bit of "inside information."

Now that does not imply that the commandment, "Thou shalt not steal," is abrogated or is rendered less cogent by its association with "conditions" (as the absolutist believes). Rather the contrary is the effect of our relativity. The commandment expands and gains strength. What it commands becomes more intricate and complex. But in that expansion and increased intricacy it must change its meaning, otherwise its command will remain utterly hypocritical and unfair. It must be modified so as *not* to allow a person to be a perfectly righteous man in the Biblical sense and at the same time conscientiously practice cutthroat competition or get rich by profiteering. Those who wish to apply the mule and ox standards

to the ethics of banking operations will find spontaneous support among all those who are determined to keep the appearance of high morality in the midst of brutal economic practices. But sooner or later they will discover that standards are not mere words and cannot be manipulated at will—that they are realities, and are capable of enforcing their commands contrary to our will and customs.

#### THE WAYS OF EMPTINESS

Such is the fundamental conflict of “our time.” It is the conflict between the “power of empty words” and the “force of circumstances,” sometimes poetically referred to as the “relentless march of time.” Let us for a moment forget about “circumstances” and “conditions” (precisely as we usually do in real life), and concentrate on the ways of emptiness. The “power of empty words” is facing us in a double form. It first confronts us under the guise of “tradition,” in the shape of those venerable values that we are determined to “save.” At present we are engaged in “saving civilization,” “saving democracy,” “saving religion,” as though history has been waiting for our generation of lofty idealists to meet the attacks on those fragile and vulnerable values and to restore law and order in the world. Even though there is an element of sound necessity in it, the larger part of that conservative energy is vain and empty, because the bearers of the old standards are either unable or unwilling to erase a single letter written on their banners. Democracy has to be that kind of democracy that we are accustomed to, namely—in our days—the political and business democracy of the capitalistic past. Religion has to be of the kind utterly undigestible for those scientifically minded and the saving of which, as in Spain, would indicate the triumph only of mediæval darkness.

Secondly, the “power of emptiness” confronts and attacks us in the attractive shape of innumerable “panaceas”—those doc-

trines and theories by which we aspire to remedy the evils of the past. It is peculiarly characteristic of the periods of transition that people begin to indulge in various schemes of salvation. And even though, again, there is an element of objectivity in every one of those beautiful dreams, the larger part of their chiliastic energy is also vain and empty. This is not because at such periods people are born dumb and foolish, or inclined to be insane, but simply because the transformation of standards is an extraordinarily difficult affair and likely to result in a vast number of painful errors. It is only another testimony of the objectivity of our standards. Their transformation cannot be subjectively excogitated, but must be *found* and *struggled through* despite innumerable subjective aberrations such as mark the bitter path of man's progress.

The reader will remember that in the beginning of this book it was suggested and, I think, reasonably demonstrated that "ideas," like physical atoms, consist largely of emptiness. Now this inherent and inevitable deficiency of "consciousness" as a cosmic factor reflects itself painfully in our social and historical life. It constitutes, I am tempted to say, the metaphysical tragedy of human existence. It would be utterly wrong to attribute it to racial characteristics or, as is often done, to ascribe it to some mysterious form of insanity that has taken possession of our unfortunate generation. Our folly is proportional to the magnitude of our problems. And—who knows?—if we had means of establishing a mathematical relation between the two, we would probably have to say that our folly is proportional to the square of the magnitude of our problems. Perhaps that is the reason why revolutions usually fail. They fail in proportion to their apparent success. They fail because they usually proceed to change the conditions to suit the standards, instead of gradually changing the standards to suit the conditions. It is sufficient to read a few pages of Russian political literature of today to realize what a terrific explosion of

emptiness was produced by the revolution. All the axioms of Communism, announced in the beginning of the upheaval with the air of absolute finality, had to be modified or given up altogether because, when projected upon the network of actual conditions, they proved, not exactly wrong, but meaningless. One axiom exploded after another, carrying each time a terrific toll of human lives. The standards refused to work. But since they were *ab initio* regarded as laws of nature, somebody else had to be blamed for that conspicuous refusal. Hence the fashionable word "sabotage" was introduced into the revolutionary practice in its specifically modern, ugly meaning as a camouflage for failure. Every time a revolutionary decree failed to materialize in practice, a few people were arrested and put in jail—to save the decree, which was assumed to be infallible. With irritating inconsistency, however, in due time the "infallible" decrees would be changed and even the axioms abandoned. The leaders, confronted with actual problems and shocks of experience, discovered—however slowly—that what they had introduced was not communism but revolutionary sentimentalities, and that "communism" was yet to emerge in a reasonably distant future, if ever, from their achievements and errors.

#### THE CONQUEST OF EMPTINESS

The absolutistically inclined minds, such as revolutionists usually are, discover all this only when they come to examine the results, that is, only when confronted with the brutal refusal of their cherished standards to work under the new frame of reference. If the effect of transformation is disregarded, the standards appear as *produced* by natural forces and, in absolute defiance of the subjective factor, are hailed as economic laws. Hence the doctrinal hypertrophies of economic materialism. A given standard detached from the whole (evolutionary) set of its historic transformations (which, as we have seen, con-

stitute its value) stands up as a self-sufficient product of nature, *causally* connected with other objects of nature and irrefutable in its static necessity.

But it is precisely as objects of nature that standards become inflated. They are empty in proportion as they are considered absolute and self-sufficient. The only way to counteract and to combat that emptiness is, in each particular case, to examine the procedure by which they are established and to restore, so to speak, the relation to their previous historical reincarnations as a dynamic set of equally valid and true manifestations of an invariant and eternal value.

Our time is sorely in need of such a method of approach.<sup>2</sup> For it is useless, for instance, to clamor in favor of "democracy" and ignore the fact that democracy did not always mean "freedom of business from governmental interference," that this particular meaning is quite local and scarcely very essential, and that a democracy is possible without that particular form of freedom, which to many a contemporary radical appears as thralldom. To what extent the freedom of business should be restrained and how, we must leave to more competent people to decide. Our problem is not to create new standards but to remind the specialists of both denominations, radical as well as conservative, that to conquer emptiness, of which they amply accuse *each other*, they must at least make an effort to understand and to follow relativity.

<sup>2</sup> Pareto is one of the modern writers who exposes innumerable empty words precisely by reference to relativity ("residue" versus "derivation"). See, for instance, his analysis of the concept of "public needs" (*The Mind and Society*, § 2272), or the expression "the best form of government" (§ 2239): "Those," he writes, "who attach supreme significance to forms of government find it very important to answer the question, 'What is the best form of government?' But that question has little or no meaning unless the society to which the government is to be applied is specified . . . . Consideration of governmental forms has given rise to countless derivations leading up to this or that political myth, both derivations and myths being worth *exactly zero* from the scientific standpoint, but both of them . . . . having effects of great consequence in the way of influencing human conduct."

## THE SPAN OF "OUR TIME"

The amplitude of our problems is very wide. We are not, like the brothers Gracchi, concerned with territorial franchise, or redistribution of government-owned land. No, our contemporary reformers are not satisfied with anything less than world revolution, or the restoration of the Roman Empire. We are not interested in "saving" anything less than Christianity, or religion, or civilization. If we are engaged in spreading Germanic culture, it must be over the whole world. Our ambitions are terrific to the point of ridiculousness. But, ridiculous on the lips of the average man, they are reflections of the really gigantic transformations which are taking place before our eyes. The tremendousness of our problems renders the span of our time very, very long.

When we say "our time" we certainly do not mean this particular moment. For physical moment may have a meaning and significance in the conditions of the laboratory work, but is *ab initio* meaningless if applied to the life of a nation, or of mankind as a whole. If measured by the clock, "our time" is physical nonsense; it cannot be measured by decades, or even centuries. To express its magnitude we are obliged to use such words as the new "millennium" (which certainly does not mean "thousand years") or "era" or even "aeon."

Moreover, the magnitude of "our time" is entirely relative. It is probably much longer for America, Russia, and Japan than it is for Germany, Italy, or Spain. It is, I think, generally longer for the countries of the Pacific than for the Atlantic realm. It *was* much longer for Constantine the Great than it was for Gaius Valerius Aurelius Diocletianus, despite his longer name and longer rule. It was longer for the Reformation than for the period of Enlightenment. On the whole, the length of "our time" seems to depend on two factors: the complexity of the period, i.e., the number of problems to be solved; and the length of time necessary for solving those problems. For the

Neolithic man there was no "our time." For the Greeks there was nothing but "our time." For the last few centuries "our time" has been becoming increasingly shorter—not because the number of its problems was small but because the time historically requisite for their solution was short. In contrast to medieval spontaneity and irrationalism, modern history deals with a number of deliberately set and rationalistically designed problems. But now, again, the span of "our time" seems to have suddenly extended, and there is at present no "end of our time" in view. The meaning of this sudden extension seems to be that we have once again reached a critical, or transitional period, with an abundance of problems which cannot possibly be expected to be solved soon. Our time may be a new millennium.

Under the conditions of modern life the splendor of the imperial courts has lost its historical fascination; it has been surrendered to the prosaic and calculating machinery of dictatorship. The "emperor" has been transformed into the "dictator." The empires are, as a rule, created by outright violence and are welded together by oppression. Dictatorships are established, not so much by oppression, as by suppression (a subtle, but important difference!), by propaganda (which is nothing else but mechanized persuasion), and also by real achievement. The emperor of the past was usually backed up and supported by one particular class, whereas modern dictatorship is not exercised in the interest of any one class—Russia would be merely an apparent, not a real, exception to this rule. It has been repeatedly pointed out that the distinguishing characteristic of modern dictatorship is its complete separation from any class. It can no longer be argued, as it has been in the past, that the economic policy of either German or Italian fascism upholds capital against labor. The capitalists who in our own, the democratic, countries still believe that legend will be gravely disillusioned when the time comes. Socialistic writers, for opposite reasons, are equally eager to convince us that the fascist

governments are anti-labor. But they are not. Fifty per cent of the membership of the Fascist party in 1921 was working-class. Pilsudski's bloc in Poland—the most liberal of all dictatorships—contained members of every political party. Kemal Pasha was supported by all groups of the Turkish population (even bandits), before whose eyes he performed a veritable miracle of saving the country from ruins.

Much more important than class affiliations are the national sentiments supporting the present-day dictatorships. The whole situation is explicable only in terms of growing, perhaps dying, nationalism. National states which emerged in Europe after the barbaric invasions have, in the nineteenth century, produced ripe fruit, ready to fall. The industrial revolution gave rise to a new bustling force which on the surface seemed to be in harmony with the principle of nationality but down deep in the roots of culture was violently antagonistic to it—capitalism, with its child, the international labor movement. Of that conflict *we* are the offspring. When after the War the Western labor movement paradoxically found its national expression in the East, in Russia, the other countries began by force of reaction to contract, like disturbed amoebas, into the narrow sphere of their domestic cultures. Fascism is nationalism in its dying convulsions.

#### IMPERIALISM AND REVOLUTION

We do not seem to believe in the possibility of a world empire. But we hear a good deal about imperialism. The change of vocabulary is significant. World empire is a personal affair, an individualistic enterprise; whereas imperialism is a policy, an impersonal aspiration, a super-organic phenomenon. The two have, really, very little in common. From the point of view of historical morphology they represent different trends of social evolution, like different cosmic currents among the stars. But ethically they are closely related. There is an identical

invariant in both of them striving to express itself in different forms, the same set of factors which, on the one hand, brutally asserts itself in the irrational lust for conquests and under different conditions manifests itself in the struggle for markets and economic expansion. The crudeness and ugliness of its historical manifestations does not invalidate the ethical character, and the religious grandeur, of the invariant itself. I shall now briefly attempt to show that the invariant is something in the nature of a value, or a set of values, which is associated with the idea of the "unity of mankind" in its terrestrial existence as a "whole."

For mankind as a whole is not an abstraction; nor is it a haphazard collection of individuals and races. The existence of innumerable hostilities and seemingly a hopeless state of disruption is not an argument against its reality. For the unity of mankind is, perhaps, more keenly felt in conflicts than in the feeble efforts of pacifistic co-operation and international security. The lust for power is one of those strange but natural organic impulses by which individuals and nations are willingly compelled to serve superorganic purposes, the aims of history. Unity of mankind may be not an ultimate value; but it is a living value, a value in the process of realization, in the state of restless and unceasing transformation. In the run of its painful and stormy terrestrial career it was variously manifested both in theory and in practice. One of its most painful and tragic manifestations was the vision of a world empire. Its brilliancy, which until our own day has such a great fascination for children, soldiers, and German high-school historians, is due to the naïve concentration of attention upon those groups who have profited by the conquests. But if one is willing to consider the price with which such brilliancy is bought, the sweat and groans of even the conquerors themselves, one will find the spectacle sufficiently revolting to cure him of the romantic infatuation with the habits of the "rapacious beast."

In any event, it is obviously not the conquest as a historical datum which constitutes the valuable aspect of the situation, but a flash, however distant, of the universal unity which is reflected in every conquest. "Mankind as a whole," writes Dostoyevsky, "has always striven to organize a universal state. There have been many great nations with great histories, but the more highly they were developed the more unhappy they were, for they felt more acutely than other people the craving for world-wide union. The great conquerors, Timours and Ghenghis-Khans, whirled like hurricanes over the face of the earth striving to subdue its people, and they too were but the unconscious expression of the same craving for universal unity."

What had been fomenting in the historically extant world empires as an unconscious instinct became a matter of selfish deliberation in the policies and practices of imperialism. The unification and interdependence of even the remotest parts of the world is accomplished by economic penetration more effectively than by conquest. This, it seems, was first clearly understood and put into practice by England. "It is to Thomas Carlyle," says Wingfield-Stratford,<sup>3</sup> "that we can trace no inconsiderable part of the spiritual, or philosophical ancestry of modern imperialism. As early as 1843, Carlyle had, in a few glowing pages of his *Past and Present*, anticipated all that was essential of an imperialism hardly dreamed of in that generation." What Carlyle had done for English ideology of imperialism, Treitschke accomplished for Germany. Imperialism was definitely established as a doctrine.

But the unity effected by imperialism, too, is only semi-conscious. For the manifest purpose of imperialism is not unity but "exploitation"—a word seemingly unknown to the ancients. The ancients did not regularly "exploit" people; they "enslaved" them. The antonym of "enslavement" is either "liberation" or "revolt." The antonym of "exploitation" is "revolu-

<sup>3</sup> *The History of British Civilization*, II, 1161.

tion"—another modern word equally unknown and even unintelligible to the ancients. As toward the middle of the nineteenth century the idea of "exploitation" crystallizes itself in the concept of "imperialism" and becomes universal, "revolution" begins to approach its logical limit in the doctrine of the world-revolution. It comes to think of itself as a remedy against imperialism. But in its negative character the doctrine of revolution, too, remains only half-conscious. In practice it reveals itself as an accomplice of the forces of emptiness.

The semiconscious character and obscurity of purpose characteristic of all those "modern" ideas renders them hazardous and adventitious even from their own point of view. Their standard-bearers—all those who are responsible for welding world empires and fomenting revolutions—can never be certain that the actual outcome of their efforts will be identical with, or even distantly similar to, what they are consciously striving for. Quite often the historical results are diametrically opposite to what the standard-bearers openly and secretly desire. Historically we hardly ever have the thing that we desire. Constantine the Great, to use a striking illustration, wished to exploit Christianity for the purposes of his totalitarian state; but, instead, Christianity exploited him *and* the state. Napoleon's design was to crush revolution; but the historical effect of his work was, precisely, the spread of revolutionary ideas over the entire European continent. The aim of Lenin was to instigate the world revolution in communism; but instead he created a violent reaction against communism and was instrumental in producing the Nazi movement, which appealed, and still appeals, to millions of half-wits precisely as an anti-Communist and anti-Semitic movement. And what will Hitler think—presumably then in his grave—if in a few years from now Germany will be transformed into one of the Soviet Socialist Republics under a Georgian or Jewish premier?

This elusive character common to both "imperialism" and

“revolution” leads some people to understand the treacherous nature of historical transformations, and makes them abstain from joining the standard-bearers on either side. For they know that what is written on a banner will never happen in life, even if the banner is victoriously established on the capitol. The ways of history are not in our hands. Hence, why shall we fight? Whether this attitude is justified or not, it is, no doubt, an integral part of our present-day mentality. It is the safety valve through which the emptiness of revolutionary and imperialistic words escapes into what Lao-tse used to call “constructive inactivity”—in our less efficient vocabulary known as “pacifism.”

#### PACIFISM AS A DUTY OF OUR TIME

At this juncture the author anticipates a violent outburst of sneering remarks directed at him from many sides: One may think : “Is it all that you can devise in a way of practical solution of our present-day troubles? Pacifism! After pages of philosophical obscurities, pseudo-mathematical formulas, and ambitious metaphors, you end—in what? In a commonplace; in the triviality of conventional pacifism. Do you realize that every, even the most conservative, militarist of today will tell you that we wish to keep out of war? Have you not yet discovered that pacifism long ago degenerated into sheer hypocrisy? That every government talks pacifism, and steadily increases armaments?<sup>4</sup> From your philosophical ivory tower you do not seem to have noticed that every time the armaments are increased assurances are sent out all over the world to the effect that ‘in compliance with international regulations and in the name of peace’ the government of so-and-so has deemed it necessary to increase the tonnage of its navy. You probably do not even realize that there are more soldiers under arms now

<sup>4</sup> The incongruity of this passage with what is happening in 1941 is obvious. I again remind the reader that this was written in 1935-36.

than there had ever been before the War of 1914-1918. Are they all there to defend the League of Nations? or to *defend* anybody? Pacifism is a sweet illusion, and to call our time pacifistic is either sheer ignorance or else an expression of academic sentimentality."

In view of such embarrassing questions I begin to feel very apologetic. Indeed, from the practical point of view my little "contribution" to the solution of our troubles is more than humble. But was I invited to give practical advice? If I were, I would not be writing these pages. As I said from the very beginning, I do not consider myself competent to give any practical advice; and—what is more—I do not think that pacifism itself is very *practical*. That is not my contention. My contention is that pacifism is our duty *because mankind is a cosmic value*. But whether or not reminding one of one's duty is very practical and advisable is an entirely different question. In dealing with criminals it would be futile.

But I refuse to believe that our generation is really criminal, except perhaps in a superficial sense. Our time is a period of industrial savagery. We are victims of gasoline. It came to us too easily. We were not ethically prepared to receive it. But fundamentally we are nice people, despite the verdict of future generations. We are not criminal, not any more, at any rate, than other generations. And I also refuse to believe that pacifism is a commonplace. The problem of ethics is not to add new and "original" standards to the number of those that are already in abundance; nor is it the ambition of the moral philosopher to discover new values and to furnish new meaning of life to those who are incapable of finding it for themselves. This, I believe, is the task of religion. The moral philosopher is not an inventor. It would be, in fact, presumptuous for him to claim great axiological discoveries. For such discoveries are not made by single individuals but are effected gradually by generations.

The task of the moral philosopher is to observe and to describe. To be sure, observation is not confined to external and visible things. One may observe abstractions and describe values. But in this process one is not confined to one's personal experience. One may observe the effect of abstractions and the advantages accrued from values in other people's conduct. The moralist is not so much a teacher as a student. And the material for his studies he derives, precisely, from the beliefs and aspirations of common folk who, perhaps somewhat unreasonably and naïvely, believe in the "ideals of the peace movement." If this makes him a commonplace, he might as well accept the epithet with humility. Ethics is not an aristocratic discipline.

I am aware, of course, that official assurances of the love of peace in the midst of feverish armaments is sheer hypocrisy; that disarmament conferences are less than empty gestures—they are occasions at which our respective governments bargain about the terms of armaments, not about *dis*-armaments. But the hypocrisy of it all only proves that pacifism is regarded as a value even by its enemies. For why pretend? Alexander the Great or Julius Caesar, whom our "leader" boys are trying to emulate, would not even think of pretending.<sup>5</sup> For them and for their time conquest was an obvious value and peace scarcely meant anything more than a peace treaty or a successful conclusion of a campaign. But now the meaning of the word "peace" has changed. Its idea has undergone a radical transformation. It has become sufficiently complicated to arouse a "movement." Its various definitions are no longer at the mercy of individual thinking but are a matter of organized effort—a doctrine on which hundreds of competent minds are working collectively. To dispose of it with a superior shrug of the shoulders or with a sneering remark, as "sentimentality," is to

<sup>5</sup> "The cat catches the mouse and eats it; but does not pretend to be doing so for the good of the mouse. It does not proclaim any dogma that all animals are equal, nor lift its eyes hypocritically to heaven in worship of the Father of us all."—Pareto, *The Mind and Society*, § 1050.

make an emotional gesture—sentimentality upside down. For militarism, too, is based on sentiment; it is not such a cold-blooded realism as it pretends to be on the surface. It would be, in fact, very ludicrously romantic and theatrical, if it were not pregnant with positively dreadful and tragic consequences. Put a number of children in charge of a munitions factory and they no doubt will set the whole plant on fire. And does it not occur to you that our whole civilization is gradually but surely being converted into a huge munitions factory with grown-up children in charge of it? To be sure, they take their business very seriously—children always do! And they call it *Realpolitik*.

Europeans who come to America are, as a rule, negatively impressed by the bustling character of our civilization. We have neither capacity nor training for leisure, they say. We are always busy, and half of the things we do are not worth doing. What Søren Kierkegaard said about “busy folks” seems to such pseudo-competent judges as Count Keyserling to fit perfectly our conditions. Kierkegaard said:

Of all ridiculous things the most ridiculous seems to me to be busy, to be a man who is brisk about his food and his work. Therefore, whenever I see a fly sitting, in the decisive moment, on the nose of such a person of affairs; or if he is spattered with mud from a carriage which drives past him in still greater haste; or a drawbridge opens up before him; or a tile falls down and knocks him dead,—I laugh heartily. And who, indeed, could help laughing? What, I wonder, do these folks get done? Are they not to be classed with the woman who in her confusion about the house being on fire carried out the fire-tongs? What things of greater account, do you suppose, will they rescue from life’s great conflagration?

Perhaps, our European critics are right. But I think we can say at least one thing in our defense: The things we are busy with here in America are mostly harmless. We play with many things, but not so much with munitions factories, except on provocation. The material from which the average European

constructs his "serious phantoms" is of much more dangerous nature. And if Kierkegaard lived in our time he would not laugh so heartily but would no doubt express his disapproval in different and much stronger words. From the point of view of future generations, our "seriousness" will seem a childish folly if not a cold-blooded crime.

Peace is a comparatively new value on our axiological horizon. It has not yet had time to adjust itself to the existing conditions by evolving a system of virtues to support and sustain itself. The old values, such as war, military heroism, world empire, even imperialism, have innumerable devices to enforce their appreciation. Our whole social system is permeated with the "ideals" designed to teach and help people "to die for their country." We had Thomas Carlyle; we had John Ruskin; we had Rudyard Kipling. And we *have* them in our grateful souls, mostly without knowing it. "This is what England must either do or perish," Ruskin prophetically announced in 1870: "she must found colonies as fast and as far as she is able, formed of her *most energetic and worthiest* men; seizing every piece of fruitful waste ground she can get her foot on, and there *teaching* these her colonists that their *first virtue* is to be *fidelity to their country*, and that their first aim is to be to advance the power of England by land and sea"—words, as Mr. Wingfield-Stratford justly remarks, which "with the substitution of Germany for England, might easily have been written by Treitschke"—and endorsed by von Ribbentrop.

But the duties toward peace stand alone and unsupported. And even such champions of duty as Kant knew how difficult it is to act on the strength of duty alone without assistance from what he called "virtuous instincts" or—in Augustinian terminology—by "grace." War commands a whole army of virtuous instincts, divine powers, lavishly bestowing grace upon our soldiers, helping them to sacrifice their lives bravely and in the name of God. But peace is a comparatively new and untrained

value, depending largely on "convictions" and "arguments," and even such convictions and arguments as are looked upon unfavorably by the police. But in spite of all this, pacifism is a duty. The mere fact that we fail to do our duty is not an argument against its validity.

#### RELATIVITY AS A SOURCE OF DUTIES

Next to the duties of the span we must consider a set of obligations arising from relativity. For the logic of relativity is not only a doctrine: it is a new attitude toward life which rapidly gains recognition under a variety of forms.

If it is true that what are commonly regarded as values are, in fact, only sets of advantages relative to some particular frame of reference; and if it is true that the effects of the frame are often taken for the values themselves and stubbornly defended against the most reasonable changes, it follows that we *ought* to be on guard against fighting for values under false pretenses, against serving our own artificial framework instead of serving genuine and objective good. Relativity is a search for invariants. And invariants cannot be found amidst the clamor of popular slogans and the tumult of the street. One must stop waving his own flag in order to see if his enemy's flag has not been raised, perhaps, in defense of the same value. A moment of reflection may eventually change one's whole life. Hence the first duty arising from relativity is toleration.

#### TOLERANCE

Tolerance based on relativity is very far removed from the rationalistic principle of *tout comprendre, c'est tout pardonner*; perhaps even still farther from Christian allforgiveness. Where millions of human lives are at stake, there is no room for sentimentalities; and hatred is the only justifiable response to the legalized brutalities of an outrageous tyranny, the only legitimate answer to the tribunals of empty words. When the presi-

dent of the Revolutionary tribunal that was assembled for the trial of Charlotte Corday asked the defendant: "Qui vous a inspiré tant de haine"? Charlotte courageously and resolutely replied: "Je n'avait pas de besoin de la haine des autres; j'avais assez de la mienne." Would you preach tolerance to her? Gibbon in his *Decline and Fall of the Roman Empire* tells us that when the edict depriving the Christians of the protection of the law was first posted in public places it was torn down by a Christian. His offense amounted to treason and was punished by a terrible form of torture. He was burned, or rather roasted on a slow fire; and his executioners, zealous to revenge the personal insult which had been offered to the emperor, exhausted every refinement of cruelty without being able to subdue his patience or alter the steady and insulting smile which in his dying agonies he still preserved in his countenance. Such self-control is possible only as a result, not of religious conviction, occasionally grossly misdescribed as fear of the other world, but of intense and all-enduring hatred. I wonder if Thomas Aquinas was indisputably right when he argued that "love must be prior to hatred; for nothing can be hated except what is contrary to some agreeable thing that is loved; and thus all hatred is caused by love." I hate pain, not necessarily because I love pleasure. The revolutionist often hates the existing order, sometimes quite intensely and sincerely, not because he is so profoundly in love with his dreams of the future but plainly and simply because he hates what is. That is what Nietzsche called "holy hatred." It is one of the greatest assets of mankind in its struggle against the powers of darkness and emptiness. When values are at stake, tolerance is not always a virtue.

But values, as we have amply seen, become apparent only through advantages; and advantages are always relative to a given frame of conditions (under a different set of conditions they may easily become disadvantages). Confronted with the pains and pleasures of life, however, we seldom take heed of

the conditions. It is value that stands in the foreground of our attention and commands our interest. From this arises a very natural error: the effects of the frame are erroneously attributed to the value itself. And if the effects, under those conditions, happen to be painful or irritating, we forget all about conditions, and direct our hostility and hatred against the value itself. In times like ours, when innumerable values have suddenly become accessible to the masses and, undigested, often become monstrously distorted, the error spreads, and confusion rules supreme. In view of such circumstances, tolerance is more keenly appreciated in the proportion in which it becomes difficult to practice. In this sense toleration is not the sweet virtue of the paupers of the spirit tending to eliminate all conflicts by the cultivated incapacity to understand their weight. Nor is it in the nature of academic serenity and cold indifference of those who are accustomed to watch the fierce battles constantly raging in the ocean of life "from a safe distance on the shore." Tolerance, from the relativity point of view, only means a rather bashful invitation to look around and see if perhaps one is not fighting against windmills. And windmills are not phantoms: they may hurt one, you know, very, very seriously, as they hurt the valiant knight, Don Quixote de la Mancha.

The learned Simplicius in Galilei's *Dialogues* refuses to look through the telescope lest his faith in Aristotle be disturbed. But try to tell the average descendant of Galilei, a modern man of science, that you are interested in the Church Fathers, not out of historical curiosity but because you are interested in their message, and he will lose all his respect for you, if he had any. In the U.S.S.R., I believe, you will be a candidate for the insane asylum. And yet, do not both reactions resemble one another as  $+a$  resembles  $-a$ ? With regard to science this type of intolerance does not do much harm; but in the domain of philosophy and art it becomes at times very pernicious, and often makes the artist's life, such as Van Gogh's, a continuous misery.

## CULTURAL ENTROPY

Cultural values can be referred to either a qualitative or a quantitative frame of reference. If in the formulation of advantages the number of individuals can be disregarded, it is said that the value is conceived qualitatively. But that is not always possible. The value of liberty, for instance, becomes positively a disadvantage, if it is confined to one, or a small group of individuals. If, therefore, the number of individuals is to be considered, or is even essential for the manifestation of a value, the latter is said to be conceived quantitatively.

The quantitative factor modifies, however slightly, every value in so far as its manifestation in human life is concerned. Some values gain by quantity. Others become diluted to the extent of turning into a commonplace, and becoming a triviality. Quality and quantity do not always seem to live in a state of axiological harmony. In fact, they are perhaps more frequently antagonistic than otherwise. The ideal of the "greatest happiness of the greatest number" may very well be applied as the measurement of value as long as happiness is taken as the standard. But it does not apply to all values. For some values are by their nature exclusive, and some are even singular.

And yet there is an element of truth in Bentham's formula. A value may be highly exclusive, for instance, a beautiful voice. But if by virtue of social conditions the manifestation of such a value is confined to a small group of people and others are excluded from cultivating it in consequence of inadequate educational opportunities, the value is allowed to degenerate and the situation results in a social crime: a beautiful voice is allowed to perish, i.e., a group of very rare natural advantages is turned into a set of disadvantages. For a beautiful voice which is not allowed to develop is a pathetic phenomenon, no longer a social asset; it becomes a manifestation of social injustice, and no longer a manifestation of value. To use a fortunate phrase of Henry George, it becomes productive of "illth," not "wealth."

With the advance of civilization, values become more and more accessible to increasingly larger groups of individuals and ultimately become the property of the masses. Masses, therefore, constitute a direction in which values move, and in this sense present a new axiological vector. Once conquered by the masses a value does not easily recede into exclusiveness, and in the new form modified by quantity commences a "democratic" existence. Hence in the process of civilization continually larger numbers of values become the property of increasingly larger numbers of people. The reverse process does not normally occur. This peculiar phenomenon constitutes what may properly be termed the law of cultural entropy.

At the present historical moment we seem to have reached the critical point when masses become rapidly more conscious of their right, and their capacity, to enjoy values. In democratic countries they even claim an active role in prescribing and promoting the kind of advantages they wish values to yield. The kind of music we hear over the radio is determined by the taste of the "average man"; the kind of newspapers we have corresponds to the intellectual and moral level of the "public." The "average man" and the "public" become direction-giving forces, and are, in contrast to the undemocratic past, surrounded by the halo of new sanctity. In *social* democracies, such as Russia, the individual is appreciated only in his capacity to serve the masses. Man becomes a "man of the masses." Even in his exclusiveness he cannot escape his destiny of being "equal" to everybody else; he is allowed to have as much exclusiveness and privacy as is deemed compatible with "public interest." In a thousand cheerful ways the "average man" penetrates our souls. He casts his pale dominion over the entire range of human activity and deposits his statistical poison in every corner of our character. In a thousand subtle ways everybody becomes "average." And there is no escape from the "law of the average," because entropy is irreversible.

Under the effect of this quantitative factor a momentous transformation of values is taking place before our eyes. Cultural values become rapidly diffused and in the process of diffusion often radically modified. We are still at the beginning of "our time," but the quantification of values is already in evidence. The advocates of quality—the epigones of the mid-Victorian bourgeois idealism—draw our attention to the fact that the process is accompanied by the inevitable vulgarization of the standards of life. They point out that the democratic quantification of values is a symptom of general axiological decline and deterioration. Values become diluted. The ancient ideal of "fame," we are invited to believe, degenerates into "publicity"; "wisdom" is replaced by "information," "truth" by "propaganda." The scholar is appreciated only as an expert, and the artist only as an entertainer. "Statesmanship" degenerates into "politics"—a word to which in America, it is pointed out, an unusual meaning is attached, indicating a sort of a hybrid between public service and legalized graft. Even religion, an admittedly personal and intimate matter, loses its dynamic power and becomes something in the nature of a social habit—cheerful and pleasant Sunday recreation. Religious freedom, that great and inspiring ideal of the past, is in danger of being degraded into the privilege of every fool and crook to believe and to preach any kind of nonsense the psychopathic brain is capable of producing.

It has also been argued that to identify freedom and liberty with democracy is to confuse ideals with reality. For "people" *can* very well be highly oppressive. What about Socrates? What about the early Puritanic communities with their detailed intrusion into private life? Demos is not primarily a form of liberty, but a form of control. It has even been argued that we are drifting away from freedom and liberty, precisely because we become progressively more democratic. Socialism in the late nineteenth century was the last word of democratic

idealism; and, behold, what has become of it in Russia! Under the control of the "people" the individual's private life is much more socially transparent. That "we," let us say, in America, are not (yet!) guilty of various forms of abuse and oppression practiced in other countries is a compliment to "us," not to the democratic form of government. For "our" democracy is not a form of government but a mode of life; and to argue that our particular mode of life is inherent in the nature of democracy is once again to proclaim that the customs of our "tribe and island are the laws of nature."

These popular objections to democracy are not to be disposed of with patriotic rhetoric. Many of them are gravely and objectively valid. To regard those deplorable changes in the cultural outlook as temporary aberrations of the weak and the morons is to falsify the issue. The alleged transformation of values is not a psychological effect which can be remedied by raising the cultural level of the masses. It is deeply rooted in the nature of the situation; it belongs to the essence of "our time." For, in a broader sense, dictatorship itself is a democratic phenomenon, a phase in the evolution of the Demos. Modern dictatorship, it is argued, is established presumably in the interests of the "average" and of the "masses." To be sure, if we arbitrarily define democracy as a "toleration of minority dissent," modern dictatorships will—by definition—be ruled out of democratic existence. But we must not forget that modern dictatorships call for the suppression of dissent, not only in the name of efficiency but primarily in the name of the "masses." And if, on the other hand, democracy itself is branded as "monopoly capitalism" and thus identified with "plutocracy," it will not thereby be defined out of its liberal government, of its trade unions, of its freedom of research, and of other innumerable values connected with the "plutocracy" of the journalists.

Recent objections to democracy are numerous. But is it to

be inferred from those objections that democracy is a failure? Certainly not! Democracy may have some shady aspects; but it also has insuperable advantages which more than compensate for a temporary deterioration of *some* human values. But apart from the question of advantages or disadvantages, democracy is historically inescapable. And the reason for this democratic fatalism is the law of cultural entropy.

The masses have commenced a new historical career. Not only the economic production of goods has ceased to depend on individual skill, but the manifestation of innumerable other values rests with the masses. The dialectical transformation of "slaves" into "masters" seems to have reached the peak. In ancient times the masses were a negligible factor. Millions of people could die in an epidemic or be killed in a war, but the living conditions remained on the whole unaltered. But at present our life depends essentially upon how good care we are in a position to take of the masses of our population. The crowded conditions of our big cities necessitate the constant vigilance of the medical profession over the entire urban population. It has been recently noticed that our urban civilization has been made possible not so much by the progress of architecture as by the advance of medicine. And medicine in this context means social medicine, the organization of public health and hygiene.

#### MEDICINE AS A PARONTOLOGICAL CATEGORY

Medicine is not only an integral part of our life, not only an important improvement on a par with other great improvements and inventions that we enjoy—it is much more than that. It belongs to the very essence of contemporary culture, to the definition of "our time." It is not, like aviation or electro-engineering, part and parcel of our national strength, nor, like wheat and gasoline, the condition of our daily existence. It is an ethical condition of our culture, an essential part of our per-

sonality as "moderns." In other words, it is not only a phenomenon of our time, like railroads or newspapers, but a parontological category.

This may seem a somewhat exalted view of medicine. Let me try briefly to justify it. The attempt may be regarded as an introduction to the philosophy of medicine, an adequate version of which, as far as I know, has never been written.

I base my judgment on the fact that the modern concept of quantitative axiology is unthinkable without reference to medicine. If we believe, as it seems we do, that to exclude millions of people from active participation in cultural values is unjust; if we believe that the masses are not there only to enable the exceptionally gifted or exceptionally lucky individuals to arise and to enjoy life; in other words, if we believe that not only the quality but also the quantity of happiness matters, the welfare of the masses becomes our *ethical* concern. Up to now the masses were regarded and taken care of only as a background for the individual or a group of lucky individuals. And in the capacity of a background they were preserved more or less biologically by nature on the margin of bare subsistence. There was very little of organized, rational effort directed toward raising the standards of living or even toward combating famines, epidemics, child labor, prostitution, et cetera, among the masses of the population. But now we are admittedly concerned with all those problems, *the vast majority of which are problems of medicine*. We are now concerned with those vast problems, not because we are ethically more sensitive than our unscrupulous ancestors—for we are obviously not—but because we are now technically equipped to handle them. Medicine, not theology, is really responsible for our ethical advance. Now we *ought* to take a far better care of the masses because we actually *can*. And we do. The true "man of the masses" is, contrary to the popular opinion, not the labor leader, but the country doctor. Owing to the prosaic work and endurance of those

inconspicuous toilers of medicine, epidemics were stopped, infant mortality is enormously reduced, and millions of otherwise doomed children are saved for useful life.

Still more vast improvements are to be expected from the progress of psychiatry. This is not necessarily concerned with the betterment of insane asylums or even with the elimination of insanity, which, I understand, is actually within range. The field of psychiatry is much wider. It includes all sorts of petty inhibitions, daily aberrations, and minor phobias, the cumulative, quantitative effect of which may eventually lead to disastrous consequences. For example, it is almost universally, and perhaps quite unfortunately, true that what we colloquially call "philosophy of life" has very little if anything to do with philosophy as a branch of science. Our philosophy of life is seldom a result of reading philosophy. It is largely a matter of personal experience. It usually depends upon what kind of life one lives and what kind of people one meets. And as a part of life it is subject to abnormal disturbances. There are healthy and there are unhealthy philosophies of life. A doctor, especially a psychiatrist, can do much more than a philosopher to correct the fallacies and straighten out the difficulties of those personal creeds. Try to persuade philosophically the chief warden of a German concentration camp that he himself is infinitely more criminal than all his inmates taken together, and you will meet a stone wall. For his outlook is not a matter of persuasion but a matter of mass insanity, a result of the cumulative effect of innumerable individual irritations, phobias, and maladjustments. Naziism, precisely as a philosophy of life, is a disease. Logicians or moral philosophers are powerless to cure it. But doctors could have cured it if they had been given the necessary freedom and power to interfere.

I wish not to be misunderstood. I am aware, of course, that such advice is worse than counseling a utopia. You cannot cure, let us say, tuberculosis when the lungs are nearly gone.

But you can prevent tuberculosis by prophylactic treatment and proper hygienic advice. The same rule applies to social prophylactics. When something like Naziism is politically established in a country there is nothing that can cure it except amputation; and that, under the modern conditions of scientific police, is terribly painful. But we can prevent it from being established—not by philosophical arguments, but by medical information, by making people realize that what they call their social and political views quite often are nothing but bundles of prejudices, petty irritations, phobias, and hysterics. Doctors can do about it much more than social philosophers—which indirectly corroborates our chief point, namely, that political and moral standards are objective realities; for what a doctor is in a position to cure must be real.

THE HISTORICAL DEBT OF THE INDIVIDUAL  
WITH REGARD TO THE MASSES

The inevitability of democracy, i.e., the irreversible character of cultural entropy, suggests that democracy lies in the nature of man, that it is somehow connected with the destiny of mankind. For, if our suggestion is correct that nature is affined to values, it must be admitted that evolution itself is a value-ridden process. In theological terms it means that evolution is “providential” and “divine.” But man is admittedly a part of the evolutionary process. Hence, if something is “inevitable” in man’s history, it *eo ipso* belongs to the cosmic plan.

It seems that until now evolution was concerned with producing the highest type of the individual. It was individualistic. The individual evolved in contrast and at the expense of the masses. Now the time has come when he has to pay his historical debt. And this means more, infinitely more, than to write books and compose beautiful music. In point of individualistic perfection, what or who can be greater than Shake-

spere, Beethoven, Goethe, or Dostoyevsky? The individual can no longer pay his debt by being better than the others. If not in Nietzsche himself, at least in the post-Nietzschean literature the idea of the superman has sufficiently compromised itself. The new man, the true man of "our time" is not rising up from the masses in contrast to them and at their expense but identifies himself with the masses and acts as their representative. For the extraordinariness of a person consists of his capacity to digest the ordinary. Perhaps this is not only a new school for the individual, through which he becomes more thoroughly personalized, but the initial stage for developing a higher type of communal consciousness, in comparison with which our individual consciousness will be just as small and ludicrous as the mind of a monkey in comparison with the mind of Newton. Who said that the individual mind is the last word of creation?

#### METENTELOSIS

An interesting and somewhat perplexing axiological phenomenon, which has not yet been sufficiently described in ethical literature, is the transformation of means into ends—metentelosis. It occurs more frequently than it may seem at first sight, and under the effect of our absolutistic habits of thought becomes eventually very harmful. In times of crisis, when absolutistic instincts are particularly active, it is often turned into a regular social disease and requires special protective measures to counteract its sometimes disastrous consequences.

The phenomenon itself is simple enough. It has been noticed and pointed out time and again that an intelligent worker becomes easily attached and begins to like the process of the work itself, quite apart from the original purpose or aim which it is designed to serve. A good carpenter not only takes pride in a well-accomplished result but enjoys the process of building, and

even develops a good deal of sentiment for his own tools and methods. In other words, the work itself, which is presumably only a means for the attainment of an end, becomes a source of enjoyment and a key to values. For the processes and ways of work, as forms of human activity, are valuable in themselves, and not merely in view of the end they serve. If the means employed is not a simple action or a tool but a complex system of actions and tools organized into a well-ordered process or scheme, it may become a source of highly intricate and exquisite values. The sense of hearing, for example, is an adaptation of the organism to the conditions of atmospheric existence; it serves the purpose of warning at a distance when vision fails to reveal the object of danger; or it serves as a means of communication far superior to gestures. Thus, biologically, hearing is a means to a number of ends; but in music it becomes an end in itself. Hence music is a form of metentelosis.

Another illustration: Hedonism, as a doctrine and an attitude, is a consequence of metentelosis. For pleasure, too, is an adaptation. Biologically, pleasure is never an end in itself but merely a means for obtaining and securing certain kinds of behavior on the part of the individual. But in the conditions of civilized existence the original purpose and function of pleasure is altogether too frequently forgotten and disregarded, and pleasure is treated as an end in itself. Biologically and even socially it is hardly ever the pleasure itself that constitutes the end, or even the aim, of action. The end usually rests with what is accomplished through pleasure or with its assistance. In this sense hedonism is plainly a fallacy. But it is a fallacy which, like Kantian antinomies, is based upon an illusion that is difficult to overcome. For pleasure, even though biologically a means to an end, becomes itself a source of innumerable values which have little or nothing in common with the original purpose.

But nature does not often transform means into ends.

Metentelosis is a characteristic feature of civilized existence. It can almost be regarded as a definition of civilization. Both the virtues and the vices of civilized man often originate in metentelosis. The feeding of civilized society, for example, becomes an increasingly complicated affair—not only because of the inherent difficulties of food production and food distribution in our society, but because in the conditions of civilized existence food ceases to be merely a means of subsistence and becomes an end in itself. It is sought after for its own intrinsic value as a form of pleasure, which leads to an almost incredible variety of often very harmful foodstuffs, to the development of a specific art; and a corresponding art-appreciation, eulogistically called gastronomy, stimulates inventiveness and even imagination, rendering social inequality more pronounced and certainly more keenly felt by giving rise to gluttony on the one side and starvation on the other. Drinking, too, becomes an absurdly complicated affair which requires a special legislation and supports one of the most profitable industries.

And what is money? The original function of money is said to be to facilitate exchange, as it was recognized very early: "*quia non semper nec facile concurrebat, ut, cum tu haberes, quod ego desiderarem, invicem haberem, quod tu accipere velles.*" This simple and remarkably compact phrase of the *pandecta* describes the situation to which money is the answer. Thus the value of money is originally assumed to rest with exchange: "nicht der Gebrauchswert, sondern der Tauschwert beherrscht die moderne Wirtschaftsverfassung." Yet on the basis of exchange originate entirely new, parasitic, values which far transcend the original function. Exchange itself, apart from its results and purely as a form of activity, becomes a value, and is treated as such with an amazing amount of almost fanatical idealism. Like a carpenter who loves his tools, so the financier loves his abstract operations, without even suspecting that they are abstract and symbolic. Money is appreciated for its own

sake as a fascinating game, as an opportunity of a very specific self-development, as a new *Daseinsmöglichkeit*. Georg Simmel, in his *Philosophie des Geldes*, has thrown much valuable light upon this question. He considers it essential to the understanding of "our time." He writes (S. 448):

Die Klarheit hierüber is nicht ohne Belang für das Verständniss unserer Zeit. Seit es überhaupt Geld giebt, ist, im grossen und ganzen, jederman geneigter zu verkaufen als zu kaufen. Mit steigender Geldwirtschaft wird diese Geneigtheit immer stärker und ergreift immer mehr von denjenigen Objekten, welche gar nicht zum Verkauf hergestellt sind, sondern den Charakter ruhenden Besitzes tragen . . . . Geschäfte und Betriebe, Kunstwerke und Sammlungen, Grundbesitz, Rechte und Positionen allerhand Art. Indem alles dies immer kürzere Zeit in einer Hand bleibt, die Persönlichkeit immer schneller und öfter aus der spezifischen Bedingtheit solchen Besitzes heraustritt, wird freilich ein ausserordentliches Gesamtmass von Freiheit verwirklicht.

We do not have to refer to the abnormal psychology of a miser to show that money is sought after and treated as an end in itself. The amount of public energy, interest, and attention connected with monetary affairs is wholly out of proportion to its usefulness as a means of exchange. Apart from what one can buy for his money, one enjoys *having* it, because it gives him social prestige, security, and power. It may be objected that, under the circumstances, it is not the money but precisely the prestige, security, and power which constitute the "end" and money is, as before, appreciated for the advantages it affords. But this is not quite so obvious. For the prestige, security, and power connected with wealth are values arising from the existence of money and are not bought by it. They are in themselves a result of metentelosis. If it is true that life is conditioned by a system of "fears" and "cares" (*Sorge*), then money "takes care" precisely of "fears" which it itself calls into existence and which apart from the monetary system do not exist. A considerable part of our social and political machinery is designed to protect "financial interests." A large number of

people in our society make their living, not by doing any socially productive work, but by rendering services directly to money. Their energy is directed toward production, organization, and functioning of money itself. The influence of bankers, for instance, over our life is stupendous. They dictate national policies, they control the daily press, the elections, the church. They create a new tone and new style of life, under the effect of which innumerable people lose their normal and healthy desires, and acquire artificial and purely symbolic interests, without even noticing it: they live under the impression that their monetary interests in stocks and bonds, investments, and savings are the most important and practical interests in the whole human life. And they are! One's bank account becomes more important than the owner of it, even in his own eyes. It acquires monstrous forms, as in Arnold Bennett's *Ricymann Steps*, and yet such common and virtuous forms that one does not easily realize its stupendous absurdity. Man is crushed, not as medieval misers were crushed by the glittering coin, but by a pale reflection of it on paper. Wealth becomes a disease—a gray, silent, virtuous disease.

And yet, on the other hand, money has a great liberating and dignifying effect upon the character. Like music, it molds and shapes our souls—not always in the direction of the vulgar and the mean. The character of sober practicality accompanied by a profound sense of personal dignity, characteristic of the English throughout their history, is probably due to the fact that villeinage with its personal services to the lord was at a very early date supplanted by free tenement, under which "service" was transformed into "rent" payable in money. The relations between the tenant and the lord were thereby magnificently depersonalized and were delivered from the element of humility on the one side and from that of haughtiness on the other. The character of the freeholder, who was protected by the king's court, was bent in the direction of personal free-

dom, away from the feudal servility and submission associated with personal service. And whatever one may say against American commercialism, one great value accrues from the general depersonalization of human relations associated with money—the spirit of personal independence and self-respect, which negatively reveals itself in the absence of servility and the fear of rank.

Still another form of metentelosis is government. The original function of government, which in embryo exists even among gregarious animals, is to regulate individual actions in the interest of the group. But those who do the regulating in the conditions of human society are very prone to exaggerate their importance and their relative value; and since, precisely by being relatively valuable they accumulate a great deal of power, they ultimately invert the original relation so that those who are governed are compelled to exist for the benefit of the government, as for instance in absolute monarchies, ancient tyrannies, or even to some extent in modern dictatorships. The relation between ends and means is, again, inverted and what is intrinsically a means is regarded and worshiped as an end in itself. Such is political metentelosis, which is very detrimental to human life and is the source of a multitude of social evils. Perhaps it is responsible for the vast majority of present-day troubles. For, regarded as an end in itself, government is turned into an oppressive machinery which produces disvalues rather than values.

Political metentelosis leads to a relative justification of the theory of anarchism which advocates abolition of government as a source of evil, which it undoubtedly is. But unfortunately anarchism itself suffers from the fallacies of absolutism. Observing, quite correctly, that government is a form of evil, the advocates of universal anarchy forget all about the conditions under which government becomes evil and believe that it is intrinsically or absolutely evil, which it is not. In other words,

it is not the government as such but only the metentelosis of government which is the source of political evil. But political metentelosis is so deeply rooted in the history of the human race, and so seriously detrimental, that emancipation from too much government or, in philosophical language, "the progress in the consciousness of freedom," seemed at times to be the chief problem of history.

The eighteenth and nineteenth centuries conducted the greatest wars and were allowed to witness the greatest conquests of freed men. The old absolutistic governments were defeated one after another, and new forms of government were called into existence which were designed to place the relations between the government and those who are governed in an appropriate mold. The small and obscure colonies of Massachusetts and Rhode Island have cleared the road for a number of constitutions to come. Political metentelosis was on the retreat. But it was only a temporary retreat. The twentieth century is again witness to the revival of absolutistic political forms, and political democracy is on the wane. There is little point in arguing which form of government is superior, democracy or dictatorship. What is important is that there shall be presented to our generation a true diagnosis of the ills arising from the sublimation of government in any form to the status of an absolute category. It is not a problem of axiology but a problem of the frame. The chief problem for the next few generations will be to establish the proper conditions under which government will cease to be an evil and will be allowed to function as what it is—a means to an end.

I am not in a position here to discuss other forms of metentelosis, of which ethics itself, perhaps, is one. For, after all, "duty" is merely a means to an end, namely, "value." And yet how often is "duty" sublimated to the status of an absolute and ultimate end! Whole civilizations—Puritanism, for example—may be regarded as results of such metentelosis. At present I

wish to point out only that the phenomenon of metentelosis itself is not necessarily harmful. It becomes harmful, however, when in times like ours it joins hands with subversive absolutistic instincts and is solemnly protected from exposure. In times of crisis when the old forms are crumbling down they often display a desperate effort to protect themselves from radical attacks by proclaiming their sanctity and infallibility. Among those forms there usually are some which are due to the sublimation of means to the status of ends. If the sublimation is thus protected by habit, religion, and the police, it becomes most difficult to change. Often the things which are most obviously means are obstinately and at great expense maintained as absolute ends, and reasonable reforms are stubbornly resented because they contradict those sacred "ends." On the other hand, innumerable "improvements" are experimented with which are designed to balance the evils arising from a presumably imperfect social and political machinery. The illusion is current that the evils rest with the machinery—or, in quite recent terminology, with the apparatus—and not with the ends themselves. Such "improvements," then, become in themselves harmful, for they are in the nature of palliatives and only serve the purpose of strengthening a detrimental form of metentelosis by covering its symptoms. The detailed analysis of such "experiments" must be left to the sociologists to perform.

#### AUTONOMOUS SELF-EFFACEMENT OF THE INDIVIDUAL

The present age is a time of entropy and increased metentelosis. Both are antagonistic to the individual, in the accepted sense of the word. The individual of the nineteenth century, the proud and self-sufficient genius of creation, contemptuous and ignorant of the masses, even perhaps, on a larger historical scale, the individual of Christianity, with his precious "soul" that had to be "saved" at any cost—is now on the decline. What

he was accustomed to regard as merely a means to his own grandeur (which claimed ultimate value), such as money, state, political power, labor, even science, stubbornly rises against him and often defeats him with its impersonal and anonymous strength. What he believed to have under his control begins to control him. On the other hand, the rise of communal values renders the salvation of individual souls a minor affair compared to the stupendous issues of quantitative axiology, which brings about a constantly growing feeling that the individual's claims are not ultimate and are not always even just. Under the microscopic analysis of the Austrian school, our "souls" no longer seem to be very precious and are not always worth saving. What they need badly is a little mending. On a closer inspection, and in terms of intimate contact, the "genius," the "hero" of the nineteenth century, is not a very prepossessing spectacle. As a great Polish poet, Zigmund Kra-sinski, once said: "in thy veins flows the stream of beauty, but thou are not beautiful thyself." Our infatuation with the idea of the superman has vanished; along with the Byronic mantle and Don Juan's rapier it was deposited in the museum of theatrical costumes of the past. One who ventures to put them on today looks a bit melodramatic and comical. Especially here in America—and I think this a great lesson in the art of living—we do not believe that "genius" is a justification for vice. We do not look with admiration at the octogenarian Goethe indulging in affairs which in this country would be regarded as "contributing to the delinquency of a minor"; nor are we particularly pleased with Paul Gauguin for abandoning his family and marrying a girl of fourteen (or was she twelve?) on the Southern Islands. We can no longer be persuaded to believe that being a Gauguin is sufficient justification for child-marriage. There is a gigantic transformation of values going on before our eyes, and within our own hearts, in the direction of self-effacement.

The transformation rests with the fact that there are at present much more important issues at stake than "individual freedom"; and the individual himself, in the depth of his axiological instinct, admits this. He may disapprove of certain awkward manifestations of dictatorial powers or democratic control; he may regard some of those manifestations as utterly absurd and others as entirely fantastic; he may object to the wisdom of certain policies; in other words, he may be opposed to the details of the frame so rigidly imposed and enforced. But, in the turmoil, as in war, he feels the advantage of having some frame of reference securely established and protected against possible repercussions. Thus, in view of the growing multiplicity of points of view, he willingly surrenders some of his "natural rights" in favor of dictatorship, or Demos, or whatever else the restricting power may be.

But there is an interesting and significant detail in this surrender. The individual of today does not readily surrender himself to another individual, to a person. Our age characteristically respects issues, not personalities. It is the standard, not the bearer of it, that counts. In our time policy defines the ruler; he is followed largely, if not exclusively, as the bearer of a standard, as an outward manifestation of a set of values, not as an individual more or less gifted, or, like Napoleon, appealing to the imagination of the masses. The secret of our contemporary dictators is precisely anti-Napoleonic. It rests with their ability to adapt themselves to popular demands, or to the needs of the time. Despite their cynical opportunism, they rule by virtue of their ideology, not by virtue of a *de facto* force nor by the strength of their magnetic personalities. For, as far as I can judge from my American distance, with the possible exception of Kemal Pasha, their personalities are very far from magnetic. Their magnetism is an induced phenomenon; they do not create, they receive the magnetic charge from the masses. Phenomenologically, they are quite different from

what we associate with the idea of a "tyrant." They do not exploit masses in their own interest or in that of a small group. They rule because they serve. And the individual submits, not to them, but to their leading achievements, to their service.

It does not pay, for reasons of ideological opposition, either to minimize or to ignore this fact. In Germany Hitler has placed himself at the service of "nationality"—hence the name, *Nazional-Sozialismus*. It cannot be journalistically disposed of as either "propaganda" or "neurosis." For is it abnormal to be humiliated by defeat, or to resent being forced to admit that one's country was guilty of starting the war? Does it need much propaganda to realize that the children are starving and the currency is depreciated? Anyone who dared even to whisper the word "revenge" would be adored as a national hero. And Hitler's whisper became a thunder by induction. Or can Mussolini be even distantly compared to the unscrupulous tyrants of medieval Italy? Is he a Borgia? In Italy, too, where the Socialists, actually in power after the War, displayed not a sign of constructive ability and distinguished themselves only by corruption and incompetence, the rise of dictatorship was a conscious response to the unconscious public demands. The farmers and even the workers in many places revolted against the administrative inefficiency and often fantastic decrees of the Red League. It was said that Fascism originated in those local revolts. It is essentially a popular movement, "far more a popular movement than Communism." No matter how much we may hate dictatorship, it is futile and harmful to try to cover up this indisputable fact. In Yugoslavia the king's dictatorship was proclaimed after several months of intense parliamentary difficulties, accompanied by murders and by a complete breakdown of the administrative machinery. In Poland and Turkey the respective dictatorships of Pilsudski and Kemal Pasha were acclaimed and actively supported by practically all responsible social groups.

Our quarrel with dictatorship does not concern its being popular or unpopular, totalitarian or democratic. Democracy can be just as totalitarian as any dictatorship. Think of Sparta! It is not their personal tyranny that is objectionable, but the tyranny of their standards and their *entourage*. In the name of the masses our dictators demand unconditional surrender of the individual. And since they have the conceit to regard themselves not only as "men of destiny," like Napoleon, but as philosophers of a new creed and prophets of their people, they tolerate no intellectual dissent; and since, as a rule, their education is limited, if not quite deficient, they are philosophically narrow and their artistic taste is dull and tardy. Hence they stifle philosophic thought and are instrumental in degrading art to the level of political melodrama. The popular consent to their respective "philosophies," or "ideologies," as they prefer to call them, is effected by various (sometimes highly ingenious) means of inducing people to think what the dictator wishes. This mechanization of consent is called "propaganda"—another modern word essentially characteristic of "our time," which, for want of space, I am not in a position here to discuss.

## INDUSTRIAL SAVAGES OF CIVILIZATION

The harm that accrues to the modern society from the transformation of information into propaganda is a minor inconvenience if compared with other forms of evil emanating from the same causes which produced dictatorships. The development of science and the amazing achievements of technique have placed at the disposal of our political leaders such resources as by a long range exceed their sense of responsibility and their ethical intelligence. In this respect, again, our dictators only reflect the state of affairs which is characteristic of the time. Compared with our technical knowledge, our ethical culture is in a primitive stage. From the point of view of later generations our time will appear as a period of civilization char-

acterized by industrial savagery. We will be analyzed by our advanced posterity as a generation having rare opportunities but who lost the way in their own caverns. It has been claimed by sound and realistic economists that we have means at our disposal of feeding and clothing without much effort the entire population of the earth; owing to the remarkable improvements in the art of anesthesia we are in a position to lead a fairly painless existence; but, instead, we produce pain and suffering in an absolutely unprecedented scale, and bring about famines, misery, and horror beyond anything that human imagination could ever conceive.

#### RELIGION WITHOUT CHURCH

Such a situation provides a set of necessary and sufficient conditions for the emergence of a new virtue, the appreciation of which is manifestly on the increase among us today. Painfully feeling the depreciation of his own value as a historical principle and as an ethical category, finding himself deserted and lost in a hostile world, the individual learns the bitter art of self-effacement and begins to practice it as a virtue. The nineteenth-century infatuation with rugged individualism is on the wane. The individual returns to service. He goes once again through what Nietzsche called the camel's phase of his development: he voluntarily takes upon himself the burden of communal values and racial destinies. He begins to regard himself once again as merely a medium for the realization of objective values which far exceed his personal aims and interests. The Neo-Platonic phrase strikes in us a new response: "the one who acts," says Plotinus, "is merely a medium for his own deeds."

The virtue of self-effacement (if it is a virtue) is not to be identified with Christian "humility" and "self-abnegation." In a sense it may even be regarded as a contrast to the prevailing mood of Christianity. It implies no asceticism, no disregard of

one's own strength and abilities. It does not appeal to the paupers of the spirit. But it is nevertheless intensely religious and must be based on faith. Ethics without religion is incomplete.

And yet the word "religion" has for our generation no definite meaning. On the one side we have those materialistically minded, who regard religion as a mere superstition of the past, or at best as an object for historical research and a problem for psychological (perhaps psychopathic) analysis. In the eyes of these pragmatic and scientific philosophers of religion, any attempt to approach religious beliefs from an esoteric point of view and to test them for their objective truth appears from the very outset to be an expression of unpardonable mysticism and immediately becomes a case for abnormal psychology. To them to continue religion means to continue church and clericalism. On the other hand, we have innumerable "defenses" of religion conceived in the spirit of the early Christian "apologies," which approach the problem from an immanent, or esoteric, point of view, but in the vast majority of cases are incapable of rising above their denominational tenets. One who ventures to seek truth in religion apart from, and perhaps even contrary to, the established forms is looked upon either as a heretic and a founder of a new sect or as a friend of all religious denominations. He is regarded rather favorably by all the conservatives who are willing to forgive him his individual idiosyncrasies and to concede him a certain amount of nonconformistic freedom in view of the fact that, after all, he is not an atheist and is willing to help them to defend religion in distress. But, on the other hand, and to his own great distress, he is branded "medieval" by all those whom he sincerely respects for their agnostic and even atheistic proclivities. For he understands very clearly that current atheism is fundamentally not an anti-theistic but only an anticlerical movement. In other words, he finds himself in an awkward position of being applauded by people with whom he has very little or nothing in common,

and ostracized by all those with whose aims he feels in sympathy. Somehow our public at large do not seem to understand that one may be sympathetically and constructively interested in theology without feeling the slightest inclination to go to church and shed what Kierkegaard has aptly called "Sunday tears," or that an author may sympathetically quote from Thomas Aquinas without being a Catholic. In view of this situation I wish to remark in passing that, even though I regard ethics as impossible without religion—or without God, if you wish—I nevertheless frankly admit, with Tolstoy, that I find infinitely more religion in our current atheism than in the sweet, conventional, Sunday-gossip clubs into which our churches long ago degenerated, especially in America.

Historical periods charged, like our own, with brooding communal energies, cannot live without faith. Communism, atheism, socialism, fascism, even social democracy are not cold scientific facts, not even experiments, as they are often called. They are faiths. They are new forms, transformations, of an old social force which once upon a time was commonly called "religion." The religion of today is not to be found in churches. Religion left churches long ago, perhaps forever; it has moved into parliaments, political conventions, hospitals, factories. It burns equally high in the atheist's hatred of clericalism and clerical institutions and in the desperate efforts of the Athonite monk to regain the "integrity of the soul" seemingly lost in the whirl of industrial and intellectual specialization. We live in a period of great religious revival even though we have not yet found either the words or the forms for this rising and virile faith. Again, the framework of our own making conceals from our view the structure of reality. The complex system of historical co-ordinates obscures our vision. We are convinced that religion must be associated with the church; that is, contemplating a symbolic form, we as usual forget the essence, the invariant.

The church, even spiritually and metaphysically conceived, is only a historical frame which, no doubt, has been of very great importance in the past but no longer fits the existing conditions of spiritual life. It is a phenomenon of degeneration. Not only individuals but whole nations can get along without it fairly well, and even better than before with it. But the degeneration of the church does not entail the disintegration of religion. On the contrary, our time is one of brooding faith which, even in its "radical" and "materialistic" varieties, more often gravitates toward excess than toward exigency, toward fanaticism rather than toward skeptical sobriety.

#### RELATIVE JUSTIFICATION OF PLEASURE

Against this interpretation of our time it may be reasonably objected that, just as at the time of the decline of Roman Empire, the conspicuous feature of our life is to be found in the lust for pleasure, in the emphasis upon "happiness" rather than upon a sense of duty and "service." It may be sheer academic sentimentality, and an expression of rather naïve ignorance with regard to the real conditions prevailing in our society, to say that we are eager to serve our standards and willing to sacrifice our comfort for the common good. The average man of today is rather forgetful of his social obligations and is eager to please himself; he is inclined to take advantage of society rather than to let himself be exploited by it. He has become keenly conscious of "exploitation," which we have established as one of the parontological categories, and he is highly sensitive to social injuries. The individual has been trained by the nineteenth-century literature to regard himself as a victim of social conditions and to defend his rights. In this defense he has gone a bit too far. He has become accustomed to regard himself as not "also an end," but *only* as an end in himself. The result was our "rugged individualism," which was inclined to deify competition and success as the only real standards of morality,

to regard economic anarchism as a natural condition of affairs ordained from heaven, and to exult in the virtues of the "rapacious beast." Look around and see—where do you find eagerness to "serve an ideal," as you put it? You find eagerness to please oneself, yes! You find every variety of vice on the increase, every form of pleasure secretly or openly practiced in our cities, "everything that money can buy." The "average man" either himself indulges in pleasures or grumbles that others indulge in them; the chief motive of his conduct is either gain or envy.

My reply to this stereotyped criticism may seem somewhat unexpected. It seems to me that the psychology of pleasure-seeking is in itself sometimes a religious phenomenon. It has a metaphysical aspect (manifest in D. H. Lawrence, for instance), when it is an expression of the individual's self-assertion, his smiling abandonment to the *irony* of pleasure. In pursuing pleasure—the individual may shockingly argue—I seem only to follow the design of nature, the law of God, if you wish. For, after all, the individual is the only place in the world (if we except angels, witches, and gods) where pleasure and pain dwell. It is not the source, but precisely the place, a sort of geometrical locus, of paradise and hell, both in one. And, surely, you do not wish him to stay in hell! He has enough of it as it is. Why should he deliberately knock at the gates of hell's chamber of horrors? He is nature's chamber of horrors without asking for it. For where else can you find real and unadulterated horrors dwelling? If that is the case, does it not seem for him natural, reasonable, and—above all—ethical, to work as hard as he can for the gates of paradise? In olden days, by inflicting pain upon himself he was hoping to prepare a nice sunny place for himself in the afterlife. But now we do not so firmly believe in the afterlife. What are we supposed to do?

The answer is obvious, is it not? Try to derive as much pleasure, and as little pain, out of life as you can. By doing that

you seem only to fulfill your cosmic duty! The objection that in view of the infinite—*sub specie aeternitatis*—the individual's life dwindles into nothing, does not deprive the argument of its force. For if the Infinite in its self-sufficiency is indifferent to my pains and sufferings, why should I worry about the Infinite? You say: He hath made thee what thou art! But what of it? If the Infinite has "made" me, as you say, to enjoy life, I do only what is expected of me, precisely, by enjoying life. But if I was "created" as a by-product of an otherwise indifferent cosmos, then—well, then, I return my ticket to the grand performance, and will try to arrange life according to my own selfish whims. No, you cannot solve the problem by reference to my cosmic unimportance. For, if I am unimportant, why should the "cosmic life," the Infinite, worry about what I do? Whatever I do, It is supremely indifferent.

But the objection, I mean the objection to my taking a good, selfish care of myself, is weak in still another respect. I cannot acquiesce in the idea, either scientifically or theologically, that I am entirely unimportant. After all, I have been produced—created, as you say—by a terrific effort of the whole universe, with either divine or diabolic ingenuity; I have been carefully hatched for life throughout the ages of celestial and terrestrial evolution. Necessity, you say, as if the magic word solves the problem? What difference does it make whether it was necessity or divine providence? I am in either case the most important thing, not only for myself, but objectively, as the only thing that can discriminate between what is important and what is not. I am the only thing that can suffer and be crucified. And that is the only thing that counts. I am not only the most important thing in the whole creation; I am the importance itself.

Far from being heretical, this intense feeling for the value and for the cosmic importance of "myself" makes its first appearance with the advent of Christianity and in Christianity's

own bosom. According to the testimony of Irenaeus, Simon the Magus, a notorious figure among the early Christian theologians, "was the first who said that he himself was God over all, and that the world was formed by *his* angels." And it seems that the same Gnostic spirit speaks with the lips of a Catholic priest of the seventeenth century who died as a monk in 1677, Angellus Silesius. He writes: "I am convinced that without me God would not be able to exist even for a moment. If I shall be annihilated, He will have to expire. . . . I am as great as God, and He is as small as I am." Does it not sound Nietzschean? Nietzsche, like Julian the Apostate, was much more a Christian than he himself had ever suspected.

This is not hedonism. The point that the ancient and modern Gnostics are trying to make is *not* that pleasure is the only thing worth striving for, nor that whatever we do is for the sake of the pleasure we derive from doing it. Their point is that pleasure is not a sin, and *is* worth striving for. And *if* the universe is a blind machine between the wheels of which we are caught, it is our sacred duty with regard to ourselves so to adjust our precarious position amidst the wheels and cogs of the mechanism that we shall not be hurt and shall, wherever possible, be able to enjoy ourselves. Under the circumstances, to rely on God's will is positively criminal. For a god who has labored six long days to build a huge and complicated mechanism with all sorts of wires and triangles sticking out at every point, and then has placed man inside of this buzzing hell expecting him to obey His law and eventually to rely upon His high will, that is, His magic interference—such a god, as Kierkegaard rightly says, "is a fool." To construct a presumably perfect mechanism for the enjoyment of His beloved mankind and then to forbid men to use it, to design a machine and then to depend on magic every time the engine makes a squeak—would not do much credit to the average engineer, not to speak of the divine draftsman. "The most terrible blasphemy,"

writes Kierkegaard, "is the one of which 'Christianity'"—or what is commonly called Christianity—"is guilty, which is, to transform the God of Spirit into a ridiculous piece of nonsense. And the stupidest kind of worship, more stupid than any idolatry ever was among the heathens, and more stupid than to worship as a god some stone, or ax, or an insect; more stupid than anything, is to adore as a god—a fool." The great passion and holy hatred that speaks through these lines is not wholly alien to us today. The more sensitive ear discerns behind those lines a profound religious temperament; for in their apparent blasphemy they are directed not against God but against man and his foolishness. And if our modern defenders of religion wish to be listened to by the younger generation they must learn to appreciate the pure and holy overtones of such "blasphemies."<sup>6</sup>

*If* the universe is a machine between the wheels and cogs of which we are caught; *if* we are placed by either a blind fate or an inconsiderate god in a hostile and coldly indifferent world, it is our duty, not to rely on the uncertainties of divine interference, but to arrange our life, i.e., primarily our social fabric, in such a manner as to provide a reasonable amount of pleasure and happiness for everybody. That, to me, is the democratic interpretation of pleasure-seeking. Such is the amount of hedonism which seems to me ethically justifiable. To leave our social fabric in the hands of God is, indeed, historically criminal. From an ethical point of view, God (like the future) cannot be conceived as a force that pulls some wires by magic and controls our life by miracles beyond those which are provided for our daily use in nature and in our own hearts. If He does exist in this sense, He Himself depends upon our free will and co-operation as co-workers and co-artists in the job of Crea-

<sup>6</sup> In this quotation from Kierkegaard I have added the words: "or what is commonly called Christianity," in order not to offend too much and too suddenly the conventional sense of religious harmony. The more sensitive reader will forgive me the license. It is not diplomacy; it is pedagogy.

tion, not as His slaves. He has given us reason and will—is this not enough of a miracle? Hence, I repeat, *if* we are placed in a mechanistic universe, we must try to make it as enjoyable, and certainly not as painful, as possible. I take this as an axiom of common sense.

I said “if.” But the condition is highly problematical. And that is where the fallacy of hedonism and gnosticism becomes apparent. The ethics of pleasure, even in its metaphysical aspect, is not as plausible as the advocates of the doctrine believe. Its plausibility depends upon certain fundamental assumptions, i.e., follows logically from a given fundamental tensor which is assumed to describe our axiological space-time. If we assume that the “peculiar and unanalyzable state of feeling” to which we give the name “pleasure” constitutes the essence of all value, it tautologically follows that enjoyment is the only thing that can be enjoyed. But, as has been recently pointed out by an eminent American authority, “when thirsty men drink water or lonely men seek companions, it is water and companions that are desired rather than the states of pleasurable feeling which will probably result from the attainment of those desires.” In other words, we may, and do, desire and seek a good many things besides pleasure. But, to be sure, among the innumerable things that we seek and desire, pleasure is one, and a very important one, especially if and when pain is deliberately and inconsiderately imposed upon us by an ugly social order or by a perverse religious creed. To conceive of God as forbidding pleasure and happiness is just as absurd as it would be for a man to build for himself a warm and comfortable house and then live out in the wind and rain.

#### MILTON AND WE

The story of the forbidden fruit seems to convey but little meaning to the new generation of men. Milton’s God, the God of dictatorial commands and worse than totalitarian authority,

seems equally unjust to Satan and to man. He punishes man for no fault of his. For Eve was "tempted" with Satan's most reasonable arguments, which Milton does not wish either to cover up or to refute. Eve just listened to reason instead of invoking an irrational taboo. And the Almighty Himself had made her rational. Moreover, God Himself is morally responsible for the "Temptation"; He is Satan's accomplice. The whole performance of the temptation is a hideous frame-up against man. For God knows what is going to happen and does nothing to prevent it. Quite to the contrary, everything is arranged for the convenience of the Devil. And yet the Devil's conduct is called "heinous": "The heinous and spiteful act of Satan done in paradise . . . was *known* in heaven,"

For what can escape the eye  
Of God all seeing, or deceive His heart  
Omniscient? Who, in all things wise and just,  
Hindered not Satan to attempt the mind  
Of Man.

In plain human language the Almighty is guilty of criminal negligence. He is unjust even to the serpent. For the poor thing did not know, and could not possibly prevent Satan from entering its body. Yet God punishes the serpent too. The only justification that Milton and his predecessors have for God's actions in the whole drama is a purely dictatorial one: *I am the Lord, thy God, and I command*. No other reason is offered for the divine conduct in the whole affair except the bare *fact* of His unbending will, the *fact* of His having the power, and the *fact* of His wrath. "Then was God ireful," we read in Caedmon:

And wrath with the host, whom erewhile he honoured  
With brightness and glory. He shaped out for that false one  
An exile home—anguish for his meed!  
Hell groans! Torments dread!  
He bade that torture-house of the exiles abide  
Deep and joyless.

Milton's Satan is a Gnostic in distress. The living spirit of Gnosticism has not been destroyed by ecumenical councils. It has survived in a thousand subtle ways and has penetrated European literature through the (mostly) anonymous apocryphal writers by which Milton, for one, was strongly influenced. His Satan is a Gnostic revolutionist, who, in a symbolic way, repeats and reveals the most dreadful secrets of, precisely human, not celestial, existence. For, in the words of another Devil that originated from an entirely different cycle of civilization, "we, in the beyond, have everything *you* have, including the three-hundred-pound prima donnas; scandal and superstition beyond belief!" It is precisely against celestial superstition, and in the name of Gnostic enlightenment, that Satan rises. He is the voice for Milton's own most dreadful doubts and inhibitions—a celestial Manichæan. He is the leader of democracy in Heaven, against the power of universal authoritarianism. More than anything else he hates that vanity of goodness which demands payment in thanks and unconditional obedience—"the debt immense of endless gratitude." He admits that his service in Heaven was not hard:

What could be less than to afford Him praise,  
The easiest recompense, and pay Him thanks,  
How due! Yet all His good proved ill to me.

Why? Is it in the spirit of democracy to be ungrateful? Certainly not. But it is in the spirit of democracy to detest servility,

adoration pure,  
Which God likes best.

Why should we be grateful to God for creating us? It takes much more courage, and is much more difficult for us to exist than for Him. For existence to us is an ordeal—to put it in the words of Robinson Jeffers, "it is dreadful for the frail flesh born of a woman to serve the triumphant occasions of God"—whereas to Him it is, admittedly, nothing but "bliss." Satan

thinks that he knows all this, and he refuses to be sanctimoniously grateful. He claims that he has a right to be spiritually independent even from God. He does not wish to accept the particles of "bliss" allotted to him graciously as a gift from above. Since he finds himself placed, without asking, in that torture-chamber for which his terrestrial brothers have recently invented a new name, space-time; since he has been delivered into the hands of blind forces and surrounded by dumb atoms, he at least insists on the privilege of remodeling the world according to his own whims and reason, however frail. For it is he who has to live there, not his presumably omnipotent Master. As his worthy descendant and disciple, Cain, says:

And this is  
Life!—Toil! and wherefore should I toil? because  
My father could not keep his place in Eden.  
What have I done in this?—I was unborn;  
I sought not to be born; nor love the state  
To which that birth has brought me. Why did he  
Yield to the serpent and the woman? or,  
Yielding, why suffer? What was there in this?  
The tree was planted, and why not for him?  
If not, why place him near it?

And Lucifer assists Cain in analyzing the world situation in these rebellious words:

Souls who dare look the Omnipotent tyrant in  
His everlasting face, and tell him that  
His evil is not good! If he has made,  
As he saith,—which I know not, nor believe,—  
But if he made us—he cannot unmake;  
We are immortal! nay, he'd have us so,  
That he may torture: —let him! He is great—  
But in his greatness, is no happier than  
We in our conflict: Goodness would not make  
Evil; and what else hath he made?

And under the effect of those words, in reply to Adah's eternal quest for happiness, Cain retorts:

Be thou happy, then, alone—  
I will have nought to do with happiness,  
Which humbles me and mine.

That is the gist of the question. The traditional religious conception of God, as a celestial dictator, is insulting and humiliating to the modern—democratic—man. We do not wish to be, we *cannot* be happy on the assumption that our happiness is a transgression, a primordial sin, a forbidden fruit. We had spiritually to conquer the right to happiness. And we did.

#### THE FINAL RECONCILIATION

Thus within the new quantitative frame, i.e., from a broadly democratic point of view, happiness does not contradict morality, and the quest for happiness can be successfully brought into harmony with the quest of morals. For what has for centuries rendered "happiness" religiously questionable and ethically controversial was the fact, of which we were always but dimly aware, that the happiness of a few is bought with the price of great misery and suffering of the masses. But, if by being happy one does not deprive anyone else of his opportunity for being equally happy, the objections against pleasure and happiness lose their convincing power, and all the extravagant rationalizations in favor of asceticism or Puritanism automatically fall off. Morality does not demand long-suffering and privation which is contrary to the principles upon which nature rests. For nature—or God, if you wish—employs pleasure lavishly to help the individual along his path of duty. Under the pressure of old slogans and standards we are still ashamed to admit it. This false reverence for the empty, old words penetrates into all departments of life, and by a thousand subtle ways reveals itself in the petty dramas of our daily existence. But the conflict is clearing up. New—democratic—happiness

swiftly emerges, like the tongues of the growing flame from the debris of crumbled eschatological and ascetic ideals, seeking new life and new adventures in humanity.

As to the romantic revolt against God, which is shy and suppressed in Milton, open and bold in Lord Byron, we must not forget—and the realization of this may offer some reconciliation to the professional theologian—that it is a revolt, not against God, but against a certain conception of God, fundamentally against a name, an empty word. Milton's "Almighty" is not the God of theology; he is the god hatched in the brooding laboratory of apocryphal literature. The revolt is as old as it is justified. It is older than Byron, older than Milton, older than Aeschylus. One finds, perhaps, the clearest expression of this revolutionary sentiment in the old religious hymns of ancient China:

Great heaven, unjust,  
Is sending down these exhausting disorders.  
Great heaven, unkind,  
Is sending down these great miseries.

Great and wide heaven,  
How is it you have contracted your kindness,  
Sending down death and famine,  
Destroying all through the kingdom?  
Compassionate heaven, arrayed in terrors,  
How is it you exercise no forethought, no care?  
Let alone the criminals:—  
They might have suffered for their guilt.  
But those who have no crime  
Are indiscriminately involved in ruin.

"Compassionate heaven, arrayed in terrors!"—does this remarkable phrase not strike a profoundly sympathetic note in our own minds today? Compare, for instance, what Robinson Jeffers has to say in his *Dear Judas*: "The bird's pain's nothing, though it grinds in my heart; all the groaning world, Simon.

Flogged slaves and tortured criminals, and bitter deaths of the innocent. Who created it? Who can endure it? . . . It would be salvation to think that I could willingly bear the suffering—if it were possible—for all that lives, I alone. I dare not think so.” Does it not formulate a question that the conventionally religious people, those defenders of religion of whom Jesus said that they “build the sepulchres of the prophets,” are afraid to ask? Where is cosmic justice? Is Heaven just? Look around and see! Religion, too, must be based on facts. And what are those facts? “Death and famine” . . . “destroying all” . . . “let alone the criminals, but those who have no crime are indiscriminately involved in ruin.” What does conventional religion offer us against those awful doubts except the feeble consolation of the life hereafter?

And yet there is an answer. It is a most disconcerting one; but it is an answer, dogmatically correct, and whispered gently into our ears by the Church Fathers: We must admit that the world is not, and cannot, be run on the basis of justice. Justice is a purely human, i.e., ethical concept, not a divine category. For if we were sure that justice will be restored to us in this world—and it is the only world we know—our good deeds would irrevocably be contaminated by the expectation of a reward, and where would our freedom be? Thus you see, God cannot possibly afford being “benevolent” in the sense of punishing the unjust and rewarding the just; for He would, then, have to destroy His greatest gift to man, the freedom of the will. We must be prepared and determined to do our own justice in this world, and not expect any reward from Heaven. It is our affair, not God’s. But this is a different story, and cannot be treated in this book.

#### CONCLUSION

We have discussed a number of “words”—“freedom,” “democracy,” “individual,” “religion”—which all serve as nuclei

of our standards, and have shown that they have all become inflated. This appalling inflation of current words seems to have reached its climax precisely in our day. We have suggested that the inflation is caused by the fact that the contents of those great words are projected upon a new set of conditions essentially different from those relative to which they had originally been designed and formulated. Their message, however valid and legitimate within the old set of conditions, has become devoid of sense and meaning when applied untransformed to a new frame of reference. Thus it has come to pass that we have been compelled to live—and, I believe, for a considerable period of time—amidst a multitude of empty words.

There are two types of reaction to this unfortunate situation. There are people who are slow and reluctant to accept any change of conditions. They refuse to see that the world as it is is no longer the world to which they were born and in which they were brought up. Of course, they recognize that many things have changed: humanity has made a number of spectacular achievements, and as a rule they are very proud of those "great conquests." But that applies only to "things," not to human beings: human nature—they say—does not change. And when they are confronted with tremendous changes in the very core of human nature itself, they say it is insanity or "propaganda." It would not be fair to charge them with stubbornness, or to attribute their conservatism to economic self-interest. They are as a rule neither selfish nor stubborn; the words are stubborn. The words persist in their state of rest and repose, despite the radical change in conditions. The people only help the words to survive. They identify themselves with certain slogans, putting themselves at their service, endeavoring at any cost to justify and to save them. Thus we have innumerable individuals among us who are determined to save our ideals for us—to save religion, to save democracy, to save individualism. They do not always seem to realize that saving

involves daring, change, sacrifice—in other words: transformation. This may be described as the idealistic reaction.

There is, however, another reaction possible; and for the time being it seems to be triumphing: Conditions are even more stubborn than words. And there are people who indentify themselves with the conditions as changed. Not only words, but also frames, from which as we know the words derive their meaning, find among us their advocates and enthusiasts. As the frames, consisting of conditions, are less flexible than words, the rigidity of their models reflects itself in the character and personality of their architects, i.e., of the innumerable “practical” people who create conditions. They call themselves “realists,” “men of action.” The old words do not mean anything to them. They discard and dismiss all of them with the gesture of wise superiority. As a rule, they have but little respect for traditions. But for them everything recently discovered and only half-established becomes “well known” overnight. It belongs to the intellectual self-defense of the man of action that he should not produce the impression of being startled or surprised by anything. He has a ready answer for every conceivable question offered—of course, from the point of view of the particular “ism” that he chooses to represent. And he becomes a great inventor of “isms,” all hastily designed to suit some specific set of conditions, national, racial, political, or economic. Of course, those “isms” are theories; but they are supposed to be *practical* theories, nothing but formulas for circumstances, modernistically designed co-ordinate systems upon which nothing is projected, mere scaffolds, not frames. Hence they prove to be as empty as the old words.

But it seems that a good deal of emptiness is necessary for action and for practice. Just as in a space filled with solid matter it is difficult to move, similarly in a world crowded with ideas it is difficult to act. Practice thrives in intellectual emptiness, and by it. To be sure, the man of action never acts blindly.

In fact, he is the most determined advocate of "rationality." But that is beside the point. It goes without saying that in order to act he has to think. But the point is that he thinks in one direction only, usually defined, directly or indirectly, by his particular "ism." He thinks to the exclusion of every other thought. In other words, he is absolutistically minded both by his own nature and by the nature of his cause. The past is for him nothing but prejudice and superstition. He does not bother to transform anything from the past into his own frame of conditions. It would take too much time, and would kill the action. Instead, he is moving along with the changing conditions, gradually becomes a convinced opportunist, and finally arrives at the point where he begins to worship change, the mere dynamism of action, uncontrolled by any standards or any pre-conceived beliefs. He becomes a professional revolutionist, advocating "permanent revolution" as the only remedy for stagnation.

This extreme attitude is not so rarely taken by the man of action. But even where and when it is not openly adopted, it prescribes the direction in which the revolutionary practice usually moves. It defines a social vector. All mystery disappears as if by magic. Lenin has bluntly and confidently proclaimed to his followers that nothing is mysterious or "unknowable"; science—the Red science, of course, purged of all bourgeois superstitions—can take care of everything. Nothing is sacred. Everything depends upon circumstances. Bending this half-truth into the subjective, the practical man of action attributes every truth and every value to the power and caprice of the individual, or a group of individuals—a "class." Thought, for him, is always a "derivation" from those residual emotions which lie dormant at the bottom of our soul. He begins to mistrust the objectivity of any standard, of any truth. Under the name of positivism this unholy contamination penetrates into the ranks of theoretical philosophy, with the result that no

self-respecting philosopher of today who wishes to be on good terms with scientific practice will mention truth without putting it in quotation marks—"truth." Under the effect of that attitude we have become, not exactly skeptical (too laudatory a word for us!), but intellectually cynical and philosophically unreliable. What is taught today may be retracted tomorrow; because, you see, the circumstances change. For the man of action every philosophy of life, including his own, becomes a matter of propaganda. In other words, precisely under the effect of his practical urge the man of action becomes a relativist; and in view of his convenient relativism he forgets relativity. He forgets that the individual has no power to coin the truth. He finds it. But he finds it amidst certain circumstances which have a modifying effect upon the formulation of the truth. Identifying the individual with the circumstances, or the observer with the conditions of observation, we commit the fatal blunder of practical relativism. We attribute to the individual what really belongs to the world.

The two reactions that we have just endeavored to describe, opposite to one another as they are, have one fatal thing in common. They both lead to intellectual inflation and result in the government of empty words. The idealist wishes to uphold and to save traditions. But, disregarding the conditions and refusing to perform the necessary transformations, he—contrary to his most lofty intentions—performs the function of an executioner by placing his sacred traditions in a vacuum where they suffocate and die. The practical realist, on the other hand, identifying himself with the conditions as changed, is inclined to dismiss all traditions; as a result he is left with nothing but an empty frame on his hands, to which he usually attaches an "ism," and then proceeds to squeeze life into his narrow and often brutal scheme.

To remind both, the idealist and the practical man of affairs, of their shortcomings is the unpleasant task of philo-

sophic thought, whereby the latter compromises itself and even incurs ostracism. The task is highly unpleasant, because neither does the idealist wish to make any substantial concessions to the existing conditions nor does the man of action wish to admit that his grand schemes are nothing but clumsy and incompetent transformations of the old beliefs. Both become positively irate if the philosopher succeeds in demonstrating their respective emptiness and practical conceit. They begin to charge philosophers with a corroding influence on life and youth. They commence to ostracize and persecute—an entirely superfluous zeal, for the general public knows a far more effective weapon against philosophy, namely, ignorance. They remain blissfully indifferent to philosophic thought, which seems (and, perhaps, is) both irreverent and impractical.

You remember the great Platonic simile of the world being a reflection of ideas? Who has not commented on it? It has almost become a triviality by repetition. And yet how can one help repeating it if it constitutes the very core of philosophy? It was a great discovery which must be rediscovered by every coming generation anew. What have we said in this book? Using the language of today we have only repeated after Plato: empirical reality is a projection of itself upon the frame of the moment. The towers and temples of the world are concrete manifestations of the ideas dwelling therein. Without those sustaining ideas they are nothing but dead and unintelligible structures; prospective ruins, nothing more. But the towers and temples, once built, claim an existence of their own. They resent being called mere reflections. Taking advantage of their palpability and visibility they deceive men into believing that they are the ultimate reality and that nothing dwells behind their thick walls. Jealous of their local power and craving absolute supremacy, they begin to hate ideas which insist on improving their forms. And men follow their hate: it is easier to see than to understand, easier to touch than to think.

This constitutes the great loneliness of thought. Among the social factors of today it feels isolated and needless. The reader will recall what we said in the beginning of this essay: "It is scarcely reasonable to expect that universal harmony could be established among us in such a demurely academic manner as by writing a book." Now the book is finished. Is it altogether futile? It will undoubtedly incur criticism, perhaps even indignation, from both the conservative idealists and the radical revolutionists. The former will be offended by the irreverent tone to which many sacred beliefs have been subjected. The latter, the revolutionists, if they condescend to read the book, will probably sneer at its treatment of the fundamental concepts of freedom, duty, and grace; they will find it impractical and medieval. And yet in their noisy and spectacular way, causing much pain and suffering, the revolutionists are slowly and awkwardly moving in the direction prescribed by philosophic thought.

As this book goes to press, Alexandria is bombed by Germany, and England, after blasting Beirut, makes her last-minute preparations for the campaign in Syria: the Western-civilization boys are defending their ideals! In view of these tragic developments can anyone still maintain that ideals are "purely subjective"? To the innocent bystanders of history, the peoples of the Near East, they are certainly not "empty words"; they are stupendous and horrible realities, with long and thirsty roots extending far into the rocky wastes of the mysterious space-time.















