
Appendix 1

The Unfinished Introduction

Editor's Note

In October 1948 Dewey finished his extensive Introduction to a reissue of *Reconstruction in Philosophy*. Shortly thereafter he turned to the task of writing a similar Introduction to a reissue of *Experience and Nature*. Early in July 1949, I received the first installment of Dewey's manuscript, densely corrected by hand and typewriter. Within a day or two I returned a clean copy. By the end of July, I received two revisions of parts of the first installment and two additional installments. The revisions were more than editorial; they were reworkings resulting in new versions, even the repetitions significantly modified by contextual changes. By the end of August, the manuscript totaled over one hundred pages of clean double-spaced copy.

The Introduction was unfinished in three respects; it had a beginning but no ending, and the material, besides having divergent repetitions, was fragmented and necessarily deficiently coordinated; secondly, there were promises to deal more extensively with this and that topic that remained promises; and finally, there were notices and outlines of new topics which Dewey never got around to at all. The unfinished Introduction projected a grand design—a philosophical interpretation of the history of Western man. Dewey's original intention was to write such a book after he finished the Introduction. But the idea of the book was too compelling to be effectively postponed: it forced its way into the writing of the Introduction.

In editing the manuscript I have concentrated on Dewey's ideas, including only a minimum of the historical material. The ideas are organized, as far as possible, to reveal their interrela-

tionships in Dewey's thought but I have not tried to fill in or obscure whatever gaps there are in Dewey's unfinished work.

While keeping Dewey's meaning intact, I have been obliged to transpose, rearrange, prune, cut up and splice Dewey's text. I have not felt obliged to call attention to my editorial effort by the conventional devices.

JOSEPH RATNER

Experience and Nature: A Re-Introduction

Twenty-five years of crucially important history have elapsed since the lectures that became the basis of this volume were delivered. The impact of history is particularly crucial upon the philosophical problem which is pointed to in the title of the volume and upon the themes discussed in the text. It is obvious that the views entertained in philosophy about Nature must be profoundly affected by developments in natural science. Virtually within the short period of a quarter of a century, the change in natural science is the greatest that has occurred since the appearance of Newton's *Principia*. Upon the side of human affairs, concerns, values and outlook (designated "experience" in the title and text) disturbances are taking place which are sufficiently extensive and profound as to threaten what, in the hopes of some and in the fears of others, is an overturn in the entire structure of the old and supposedly firmly established order. How do the positions set forth in the text stand, especially how do they stand *up*, when they are re-viewed in the light of the present situation in the science of nature and the human estate?

The fact that the second edition of *Experience and Nature* is reprinted unchanged may be taken as evidence that its author does not find anything in the text which is seriously incompatible with what he would find it necessary to say were it written today. But he also finds that the direction taken by intervening events places the positions taken a quarter of a century ago in a larger context than it was possible to envisage at that time. This Introduction will be devoted to an exposition of that larger context.

II.

When the text was written one of the features that distinguished it was its use of "experience"; "experience" was asserted to be *of* the natural world in the most pregnant sense; it was employed to stand for every actual and every possible way in which man, himself a part of nature, has dealings with all other aspects and phases of nature, including man's delusions, errors and daydreams, as well as his useful and fine arts; his discoveries and inventions; his tested and approved knowings. "Experience" is a word used to designate, in a summary fashion, the complex of all which is distinctively human.

The events in science and in the ordering and disordering of human life that have occurred in the intervening years have indicated that while "experience" is a fitting name for the special way in which man, at least in the Western world, has shaped his participations in and dealings with nature, its peculiarly distinctive application may be said to lie within the cultures that have followed from, and mark the break with, the medieval period. This limitation of the expression "experience and nature" is overcome by the more generalized statement that the *standing problem* of Western philosophy throughout its entire history has been the connection-and-distinction of what on one side is regarded as *human* and on the other side as *natural*.

Something will be said later as to the appropriateness of "experience" in denoting what is distinctive of the spirit of the post-medieval period. The indefiniteness of the word as a name is part of that fitness. The reference of experience is not to be pinned down to any narrow and limited meaning; and, as we shall see in the course of later discussion, the attempt in philosophy to hold it down to an aspect that at its very best is but a highly specialized cross-section of experience is a main reason why the philosophy of the period finally got out of touch with the moving spirit of the very events it supposedly was concerned with.

Before expanding upon this point it is proper to note that to regard "experience" as a name that is especially suited to apply to the human phase of philosophic subject-matter in its relation to the natural phase in a particular cultural period and age en-

tails the recognition of philosophy's variability in different cultural eras and areas. This point of view stands in sharp opposition to an assumption about philosophy which is often made.

To hold that the scope of philosophy is comprehensive, inclusive, in the sense that philosophy, whatever the time and place, is always concerned with the connection-and-distinction of the human and the natural, is in effect to deny that it is comprehensive in the sense that it is identical in content at all times and places. It is to deny that the scope of philosophy can be stated in terms once for all as it could be if philosophy were independent of time and place; if, in words made familiar in traditional philosophy, its subject-matter were eternal, immutable and universal, and hence entirely unaffected by the changes in human events, including those that occur in the science of nature as well as in other cultural activities and conditions, esthetic, industrial, political, etc.

The assumption that "experience" has an inherent meaning which provides a sure standard of judgment by which to determine the status of everything else is, as we shall see in later discussion, one of the things that rendered the philosophies purporting to be philosophies of experience so unable to deal effectively with experience that they eventually lost both intrinsic vitality and extrinsic popular esteem.

It is also appropriate at this point to call attention to the fact that although the Nineteenth Century was par excellence the period in which definitive discovery was made of the comprehensive scope of history, culminating in the inclusion in history of plant and animal *species* (which had been considered immutable), nevertheless philosophers failed, to a very large extent, to learn the lesson the discovery taught.

Before leaving the theme of the necessary historical variation of the *content* of the problems comprehensive enough to be those of philosophy, I would call attention to the common tendency of philosophers, who nominally believe that the concern of philosophy is with the comprehensive in the sense of the eternal and the universally identical or uniform, to dodge the inconvenient fact that variation has extended so far that the controversial and polemic nature of philosophy and the failure of representatives of opposed doctrinal schools to reach agreement are among the great causes of the general loss of esteem that philosophy is

progressively undergoing. Furthermore there is something intrinsically pretentious in philosophy's claim to deal with what transcends time and space while progress is continuously made in natural science in dealing with temporal and spatial subjects. Those who are sympathetically concerned with philosophy have every reason for anxiety.

The position here taken does not of course make the controversial state of philosophical schools a highly creditable matter but it makes the course of philosophy more significant and instructive for it discloses that philosophy is a highly generalized handling of human problems in connection with their setting in nature as nature is understood at a given time. Consequently, diversity of proposed solutions of issues of such range and depth is not only to be expected but when interpreted in historical-cultural context provides an increase in the resources at our disposal. It is surely instructive to note that as a rule problems once central in philosophy fade in importance, that they are *dissolved* with respect to actuality rather than *solved* with respect to validity in the universal and eternal scheme of things. What we validly know seems to indicate that process, if anything, is what is "universal."

III.

I am fortunate in being able to locate the cultural historic period and geographical area in which my use of "experience" is warranted by means of a quotation from a historian whose insight is as penetrating as his learning is comprehensive. I refer to Lord Acton who, in his inaugural address on assuming the professorship of history at the University of Cambridge, used the following words: "I describe as modern history that which begins four hundred years ago, which is marked off by an evident and intelligible line from the time immediately preceding, and displays in its course specific and distinctive characteristics of its own. The modern age did not proceed from mediaeval by normal succession, with outward tokens of legitimate descent. Unheralded, it founded a new order of things, under a law of innovation, sapping the ancient reign of continuity. In those days Columbus subverted the notions of the world, and reversed the

conditions of production, wealth, and power; in those days Machiavelli released government from the restraint of law; Erasmus diverted the current of ancient learning from profane into Christian channels; Luther broke the chain of authority and tradition at the strongest link; and Copernicus erected an invincible power that set forever the mark of progress upon the time that was to come. There is the same unbound originality and disregard for inherited sanctions in the rare philosophers as in the discovery of Divine Right, and the intruding Imperialism of Rome. The like effects are visible everywhere, and one generation beheld them all. It was an awakening of new life; the world revolved in a different orbit, determined by influences unknown before. . . . The sixteenth century went forth *armed for untried experience*, and ready to watch with hopefulness a *prospect of incalculable change*.¹

It is gilding refined gold to comment upon special portions of the marvellous survey that is condensed into the brief statement just cited. But I cannot refrain from calling attention away from the conventionally recognized geographical feat accomplished by Columbus to the revolution thereby effected in commerce and consequently in political and economic orders. Nor is the grouping together of the rise of Divine Right of Kings with the new Imperialistic policies of Rome as two aspects of the same tendency the conventionally current idea, while what is said about the work of Erasmus throws more light upon what the Renaissance did in preparing for the Reformation than does many a historical treatise. If the statement about the work of Copernicus in invincibly setting "the mark of progress" upon the time to come seems to date the statement as an expression of the optimism prevailing before the advent of two world wars, that impression is corrected by proper attention to the phrase "incalculable change" that I have taken the liberty of italicizing; for the heart of the new era initiated by the events Lord Acton mentioned is precisely the movement away from the fixities that were taken to be the necessary conditions of stability and order towards the release of processes of change tending to the unforeseen and the unpredictable.

1. *Essays on Freedom and Power*, selected and with an introduction by Gertrude Himmelfarb (Boston: Beacon Press, 1948), pages 5-6. Italics mine. The lecture from which the quoted passages are extracted was entitled "The Study of History" and was delivered in 1895.

The other phrase that I have made emphatic by use of italics, "armed for untried experience," may be taken without violence or distortion of its import as the text of what follows. In the centuries before the time dealt with by Lord Acton "*untried experience*" would have been absurd, a contradiction in terms. For the method and subject-matter named by the word "experience" had been identified during at least fifteen centuries of European history with the *empirical* in a sense indicated in the following quotation from the Oxford Dictionary: "Of a remedy or rule of treatment, etc., that is adopted because found (or believed) to have been successful in practice, the reason for its efficacy being unknown." While the definition quoted refers specifically to medical practice, it reveals in a highly instructive way the entire view taken of experience up to the time of the revolution in natural science. For "experience" as empirical had to do only with "practical" matters in a sense in which *practice* was held to be completely isolated from *theory* and could be at its very best (as expressly stated by Aristotle) an unintended and rationally unguided outcome of an accumulation of *ad hoc* activities which were so frequently repeated that it formed a practically useful habit. Furthermore, in accordance with Aristotle's idea of the formal cause, the way in which the habit was produced determined its status and function in "knowledge." It was produced without any aid or direction that was rational or reasonable and consequently could not be or promote any rational understanding, which is what knowledge or science is.

With the change of which Galileo's experiments with falling bodies are typically representative, "experience" was completely transformed in character and function. The empirical became the experimental. The *source* of knowledge is found (i) in the consequences *to be* brought into existence; (ii) in the activities which are deliberately shaped and constituted, neither on the basis of habits formed in the past nor by power of "pure thought" but by reflection upon materials and their possibilities as constituents in a plan of action which when carried out will be useful in discovering new² materials and/or methods that will enlarge or correct what had been previously regarded as knowledge; (iii) the plan of action is tentative and hypothetical; its validity is *not*

2. Rhetorically the word "new" is pleonastic, but it may serve to draw attention to what is involved in "discovery."

known; its outcome is *not* known; and for these very reasons the hypothesis or hypothetical construction is useful in evoking and directing overt activities of making and doing which bring to light—that is, disclose to observation—new materials and processes which are in turn used in initiating and directing further undertakings of inquiry. To get a vivid sense of the difference between “empirical” as it was understood before Galileo and “experimental” as it has become known since Galileo, one need only compare the state of knowledge four hundred years ago when the “modern age” began with the state of knowledge to-day. The difference is not merely quantitative, but qualitative. Knowing-inquiring is a going concern of indefinitely expanding range and depth.

IV.

Revolutions in the formal organization of human relationships are much easier to effect than revolutions in the hearts and minds of men. Those who have from infancy drawn their intellectual and moral sustenance from the institutional conditions into which they were born and by the necessities of the case have not known any other do not change their desires and convictions when governments topple and new laws are enacted. Habituations to the old persist long after the old has changed its form. Ways of observing, of communicating, of prizing and disapproving are engrained in character and are neither thrown off nor greatly modified by what are deemed revolutions by those who record the course of history. Only when revolutionary changes are the consummation of actual moral and intellectual changes are their consequences free from internal divisions; but it is not often if ever that more than a minority of those affected by a revolution will have already undergone changes in personal outlook and deep-seated conviction that are consonant with the aims and interests of the revolution. Habits of belief are even tougher than habits of overt action. The changes that constitute the passage of the institutional organization of the medieval period into that of the modern are so extensive in range and so intense in quality that they would have plunged the peoples into chaos if they had not carried their old habitudes over into their dealings with the new. But salvation from chaos is not salvation

from inner division, from the confusion and conflict that inevitably attend attraction and attempted movement in opposite directions.

The obvious manifestation of the incompatibility that penetrated to the depths of the transition that constitutes the period called modern is what is known as *The Warfare of Science and Religion*. But the events which are recorded in the history of this particular division and conflict in the struggle of the old to give birth to the new is in fact incidental, almost episodic, in the deeper civil or internal war that has continued for centuries; to name a few outstanding events of that war: the conflict of church and state, of rulers and subjects, of aristocracy and bourgeoisie, of bourgeoisie and proletariat, of employers and employed. And in multitudes of human beings the conflict took the form of an uneasy half-recognized and half-concealed confusion that the standards and principles which were taught to be ideal and spiritual pointed one way while everyday interests and occupations that were considered worldly and secular pulled vigorously in the opposite direction. Ambivalence of this sort in personal life is subtle and Protean. In the social arena, it is quite easily identified, "spotted" one may say with verbal propriety, in the large-scale compromises that are rife between success in business and adherence to acknowledged moral obligations, between private and public integrity. There are also the other accommodations and adaptations which are dilutions of the older out-and-out warfare of the sacred and the secular—the compromises and reciprocal accommodations which it now sometimes seems to be the chief office of current institutions to maintain.

Our concern here is with the ambivalence as it is reflected in the philosophies that reflect the doubleness, the unintended but inevitable intellectual duplicity, that marks the unanticipated and unprepared-for change from an order that had prevailed till a few short centuries ago in every variety of life that ranked as civilized to one of which now the most that can be said is that it is in process of change but no one knows toward just what.

V.

In classic philosophy, both the cosmos and knowledge were linked in two radically different grades or ranks. Cos-

mologically, the low kind was of things and affairs which sometimes are and sometimes are not; they are shown thereby not to have Being on their own account, to be dependent on that which is external to them; in sum their occurrence is inherently contingent instead of necessary. It follows, on the assumption of complete correspondence between grade of Being and grade of knowing, that the organ and operation of apprehension is low with respect to low things; the very lowest of organs and operations of the lowest is sensation. Knowledge of things which usually, upon the whole, but not always, are such and such is empirical knowledge. At the other end of the scale of the cosmos is Being which is perfect, complete in itself, having no dependence on anything outside its own self-sustaining existence; hence it is immutable, changeless in time and universal, everywhere the same, and in that sense without location. With respect to knowing, science is in one-to-one correspondence with Being in this supreme and final sense.

If there were a word completely antithetical to "one-to-one correspondence," a word that expressed difference carried to the extreme of outright opposition, that word would apply to science as now conducted and understood. In classic Greek-medieval theory science is of that, and *only* of that, which so transcends space and time as to be unaffected by differences of place and date. In modern practice, natural science has to do inclusively and exclusively with events, existences having specifiable space-time connections with one another; particulars are scientifically known when they are *specifically* located and dated in a system of interconnected events. Again science in the classic scheme was of fixed *natures* in a sense in which the nature of a thing is the essence by virtue of which it is always and everywhere *what* it is. Because of the connection of science with essence and with essence alone or exclusively, all classic scientific knowledge was taxonomic—it classified things into fixed, static kinds or species according to the unchangeable Being of each kind. To cap the climax of anti-correspondence, scientific knowing today substitutes for the isolation between species or kinds demanded in the classic scheme a continuity which so intimately binds together all the members of scientific subject-matter that reflection or inference can travel freely from any one to any other without being balked.

In the Greek theory "a sensation" was the medium and organ of knowing that the sensible and sensations are proverbially fleeting. Greek scientific knowing was of the universal; sensation or sense-perception was of the particular—a stone, a bug or whatever—in its particularity. In the present conduct of natural science, sense-perception is doubly involved in scientific knowing of nature, although not of itself constituting such knowing. Sense-perception is indispensable in the occurrence of a problem as the occasion of scientific knowing. Sense-perception is also indispensable in the testing of the proposed solution of the problem.

The revolutionary change-over from the Greek to the modern method of scientific knowing was effected by the modern use of experiment. Experiment—the indispensable instrument of modern scientific knowing—is the art of conducting a sequence of observations in which natural conditions are intentionally altered and controlled in ways which will disclose, discover, natural subject-matters which would not otherwise have been noted. Noting the latter is a *sine qua non* of determining the problem to be investigated and of testing any general principles or theory entertained concerning the state of facts. Theory thereby lost, once and forever as far as concerns the conduct of scientific knowing, the Greek status of finality and acquired the modern status and office of a working hypothesis. The Greek view of theory had stood obstinately and obstructively in the way of the development of systematic understanding of the events of the natural world.

The experimental method of scientific inquiry broke down the wall that had been erected between theory and practice. Knowing was not *Theoria*, the contemplation of pure and complete Being, free from even the slightest trace of "practical" activity. Knowing involved some kind of doing and making. It turned away from immutability toward process, change. It turned from the past toward the future, from precedents to consequences; from isolation to continuity; from laws imposed upon particulars to connections through which particulars became interchangeable parts of a whole ever-extending its spatio-temporal range.

Human beings cannot transfer their point of view over from the immutable to an orbit of innovating change of which neither

the scope nor the direction could be figured in advance without involving themselves in all sorts of deviations, backslidings and movements in opposite directions. Hence the incompatibilities and the distractions, the confusions and conflicts, the uncertain tackings to and fro, of the past few centuries, and hence the ambivalent character of the philosophies sympathetic to the new but for that very reason caught in the relatively undirected ebb and flow of its tides.

VI.

What has been said about sensation, sense-perception and theory raises the question: what is the nature of the kind of thinking designated as reflective?

The implication of the traditional view is rarely explicitly stated. The basic implication or underlying assumption is that there is a unique organ, faculty, agency, kind of activity which engages in reflection. In the case of everyday activities, in the area of commonsense knowings, it will probably be generally admitted that what is called reflective thinking is concerned with issues and problems that have to do with determining ends to be pursued on the one hand, and on the other hand with selecting the means and arranging the sequence of means for attaining the ends with maximum ease and minimum waste. If this is not admitted, it, at any rate, sets forth the postulate of the present discussion.

In the everyday cases of going over matters reflectively, in deliberating about alternative means-consequences (or consequences-means), reflection has to do with *practical* issues in the sense of being concerned with things to be done, *facienda*, in the ongoing course of one's life-activity. The office reflection is called upon to perform demands looking-into-the-probable-future-in-connection-with-surveying-the-actual-past. During this reflection every shift in an end proposed requires an adaptive shift in that aspect of reflective behavior which surveys past experiences of doing and suffering.

If in the reflective survey one happens to think of something that was conspicuously successful under somewhat similar conditions in the past, its presence in reflection may bring about a

very great change in the end entertained and tentatively proposed.

The word "happens" is used intentionally. One who is expert or practiced in reflection is usually able to set his mind firmly on the practical issue that calls out reflection, and the accompanying emotive quality of the issues urges going over future possibilities and past actualities in their means-consequence connections. But he cannot by an act of "will" decide just what conditions or ends-in-view to summon. That is a matter of his already formed mechanisms or disposition—usually termed in psychological literature "associations" but also often placed in opposition to reflection instead of being recognized as the mechanism or apparatus by which reflection goes on. And while I am on the topic I add with no attempt at development that language, namings already in use supply the apparatus or mechanism by which elements of *past-future* present themselves in reflections which are, in respect to time, affairs of the *present*.

The conclusion in behalf of which the immediately foregoing considerations are advanced is two-fold. Negatively it shows the gratuitous futility of appealing to some special "mental" organ or capacity to account for reflective activity. It is literally *reflective* in that it *turns back* to go over (sometimes over *and* over) one's past experiences, whether obtained directly or through the media of conversation and reading, so as to find facts that are relevant to the specific *faciendum* that is the occasion of reflection: therefore (so the present writer holds) it is hardly possible to exaggerate the applicability of the expression "going over" or the semi-slang expression "*giving* it a good going-over." The subject-matter is there for whatever it is worth; what is *not* there is its *bearing* upon the specific means-consequence, consequence-means relation that has to be determined if the behavior is to be intelligent.

VII.

How are scientific knowings and knowns related to those of common sense?

The bringing-up, the rearing, the out-of-school education of every normally equipped human being consists, from infancy

through life, in learning what to do and how to do it in situations of doing and enjoying. Compared to scientific knowing, the distinguishing feature of common sense, everyday kind of knowing, is that it is specific.

The kind of specificity involved is linguistically expressed by delimiting terms. The activities are pinned down to *this*, *that* and *the other*; they are further pinned down by specific references to date (*now*, *then*, *not yet*) and to place (*here*, *there*, *yonder*). These delimiting linguistic specificities reduce to their bare bones or, if one prefers, to their fighting weight, the chronological and geographical information necessary to establish the spatio-temporal location and connections of the commonsense activities involved.

In contrast, scientific language is completely neutral. It is intended to apply to events whenever and wherever they occur. It is as exempt from references to B.C. and A.D. as historical and biographical statements are attentive to them. What happened in some remote geological aeon is as if it happened five minutes ago. What takes place in some remote astronomical galaxy is as if it were taking place next door. To state the matter summarily, scientific language is a code by means of which that which happens at any specified place and time is capable of translation into what happens at other places and times. Science transcends local events and existences *as far as* it is able to treat space-time as one locale.

Theoretically, the "as far as" of the last sentence admits no exception. Actually, or as a matter of fact, it is limited by the range and/or scope of the practical means developed and at command. The import of this statement may be gathered from a consideration of the relationship that the practical or doing-making aspects and the intellectual or theoretical aspects of knowing sustain to each other in the case of commonsense and scientific knowings.

In commonsense knowing the knowing is for the sake of the *faciendum*; in scientific knowing the reverse is the case. Not that it does not entail plenty of doing and making. The scientific laboratory is not a rhetorical flourish; it is a working place devised and used for the sake of knowing. But just as the doing-making in commonsense knowing is limited by the amount and kind of knowns at disposal, so the extent to which interchange

and transmutation can be achieved in scientific knowing is limited by the extent and refinement of the practical operations of laboratory instruments and other apparatus and techniques at command. In industry, there is no *a priori* limit set to conversion of raw material into finished goods for consumption and enjoyment; limits are not set by anything inherent and immutable in the "nature" of the materials involved; the limits are the limitations of technological equipment and operations, which are to be overcome by invention and advance in technological procedures and processes. Correspondingly, difficulties and obstructions encountered in natural science are "practical" and are tackled and overcome by experimentation with and upon experimental techniques and materials.

Commonsense knowing is enmeshed in the individual situation. Scientific knowing liberates itself from the individual situation and its pressing practicality. This liberation does not destroy the practical possibilities of scientific knowing; it is the very source of its practical power. Aloofness from immediate practical use provides the occasion and opportunity for employment of experimental operations for knowing as knowing which terminate in an extension of practically useful commonsense, everyday activities, once literally incredible.

As I have said, everyday knowings are concerned with *facienda*, with things to be done and/or made; with things necessary for making a livelihood; with meeting emergencies as they arise and taking advantage of opportunities as they offer themselves; fulfilling all manner of obligations; evading and surmounting obstacles; helping and being helped by one's friends; getting ahead of or making terms with one's rivals; ways of adding to the conveniences and delectations of life, and so on and so on, indefinitely in situations which supply an inexhaustible fund of material for dramas, novels, histories, biographies, day-dreaming.

The liberation of scientific knowing has been facilitated by and deepened and broadened because of the creation of a special language, indeed, to speak more exactly, of many special languages. On the other hand, for all everyday doing-enjoying, everyday language suffices. Compare, for example, the water of everyday use and language with that of H_2O . Our everyday use of water is limited by our commonsense knowledge that solid,

liquid and gaseous conditions constitute its range of possible transformations.

Extensive as are the uses-enjoyments thereby ensured they are very limited as compared with the fact that H_2O and every other compound have common denominators and, accordingly, are in theory indefinitely transformable into one another, the hindrances to transformability being (as has been indicated) of a practical nature. This view is perhaps most clearly warranted by recent scientific progress. It has now been shown that what holds of compounds holds also of "elements." They were for such a long time held to be ultimate and hence immutable, but now in theoretical-experimental promise they also are reciprocally inter-convertible. What is intellectually a most highly instructive aspect of the whole matter is that the discovery of indefinitely extensive translatability was arrived at not by set intention but as a consequence of experimental inquiries in pursuit of other hypotheses. Similarly, recent experimental scientific inquiry has transformed what were previously independent, isolated "special" sciences into an interconnected series constituting an increasingly fluid, traversable continuum.

The radical unlikeness of scientific and commonsense knowledge is held to be a great "problem" of philosophy. Philosophers seriously maintain that solution of the "problem" compels making a thoroughgoing cosmic distinction between a world of mere "appearance" and a world of "reality" even though to arrive at "reality" we must start from, and move along and ahead by, indications received from the world of mere "appearance."

How can we account for the extraordinary doctrine that to reach reality we must first give full faith and credit to what is condemned as illusory? I do not know what the accounting can be if it is not the assumption that only the immutable, universal and eternal can be truly known. For unless that assumption is indulged in, the explanation of the difference between scientific and commonsense knowing is so simple as to stare us in the face. Commonsense knowing has to do with the concerns of living; and nowadays living in an environment pervaded by the activities and consequences of scientific knowing involves a wide-ranging, diversified network of communications. Articulate speech, written and printed words, indeed everything that happens may become a sign speaking to us as evidence of something

else where scientific inquiry has taken it out of its specific, commonsense spatial-temporal setting. The remoteness of the formulae of physical science from the subject-matters that are known in one kind or another of use-enjoyment—the characteristic of all commonsense knowing—does not remain in isolated remoteness. For centuries rather directly and today actually as a matter of course they are followed by inventions providing various levels, degrees and kinds of use-enjoyment. It is a commonplace that the age of machinery is now passing into the age of power.

In the classic tradition, the difference between science and everyday experience is not one of degree but of absolute kind. Ironically enough, modern scientific knowing establishes its superiority to commonsense knowing in the very respect for which the latter is disparaged by classic traditionalists. It is precisely in respect to practicality, to utility, that scientific knowings and knowns are superior to those of everyday common sense. By subordinating theory to experimental practice, by liberating knowing from immediate concern with practical gain, what needed to be done for maintaining and enriching human life was widely accomplished. Since it is human life that is sustained and enhanced by this modern scientific mode of knowing, the lives of the most highly civilized men, artists as well as artisans, of the wisest statesmen as well as of ditch diggers, are the beneficiaries. Only the age-old snobbishness of a professionally leisure class puts the practical and useful in bondage to the servile and menial.

VIII.

Since the theme of this Re-Introduction is particularly concerned with the philosophical mirroring of the cultural transition from Greek-medieval to modern, we must consider how philosophic systems carried over into their generalized accounts of the new the very assumption which was formulated in the older systems. What I have in mind is the fact that devotion to the immutable and hence to that which could not be affected by the tooth of time nor be hemmed in by any spatial location led the philosophers in sympathy with the new to feel that they

could strengthen it by providing an underpinning of the eternal and universal.

I select for special discussion an instance which is intimately and pervasively bound up with the early history of the new physical science. I refer to the incompatible mixture of old and new in the scientific status and role given to matter, motion and quantitative measurement. With regard to their position and office in the scientific knowing of nature the new is profoundly revolutionary. From a strictly historical point of view the mixture of the revolutionary new with the old may have been inevitable; from the vantage point of the present development of physical science it appears so curiously out of the way as to be almost incredible.

In the Greek-medieval cosmological-ontological scheme, matter, motion and quantitative measurement held the lowest, literally the basest, place in the hierarchical gradation of both natural existence and ways of knowing. Matter was totally without character; it had no nature of its own—the *sine qua non* of any kind of knowledge. Matter itself was incapable of being known not only in a scientific way but even by means of “sensation” until it had received by contingent concurrence of external circumstances some form of particular perishable existence or particular transitory event. Since science was of Being, self-active and self-sustaining, independent of contingencies, self-identical or universal eternally and immutably, nothing in terms of the classic scheme could be more self-contradictory, intellectually more absurd, than a science of matter.

Only a few short centuries ago, the revolution in physical science established matter as a “substance” in its own right. It became a “substance” in the old cosmological-ontological sense—self-sustaining in its solidity and self-identical through all its incessant “sensible” changes. The new physical science measured the direction and extent of motion quantitatively; the measurements implicitly had the status of the immutable by assumption of necessary recurrence of identical conditions of motion. The revolution in treatment of motion was as total as in the case of matter because in the Greek-medieval scheme motion was a mode of change, change was by its very nature infected with lack of Being and hence incapable of scientific knowing. Furthermore, in the old scheme, quantity was merely an “acci-

dent" of substance (in the ancient meaning of "accident"); quantities were contingent variations that did not affect the form and essence of a substance. Measurement in its modern sense and "measure" in its ancient sense are fundamentally different in kind. Measure was the well-proportioned, structural ordering which, when projected to embrace the natural world, endowed it with esthetic-artistic properties, justifying the name Cosmos.

It is instructive to pursue the preceding analysis a little further.

Time and space were, in the new physical science, immutably self-subsistent and self-sustaining, each a cosmological-ontological substance. Time and space were independent of each other and also independent, as wholly external containers or envelopes, of the atomic bodies moving about within them. The atomic bodies of which matter consisted were immutable as well as indivisible; the infinite number of collisions they endured did not even infinitesimally affect their ultimate, essential nature, their cosmological-ontological material substance.

Without going into further detail, it is evident that wherever we look into the fundamentals of the new physical science we find inherited conceptions of immutability and universality retained as necessary support for revolutionary innovations which, if carried through, would utterly destroy the classic scheme. It does not demand any extraordinary keenness of vision to realize that precisely what did not happen has now happened. Recent developments in astronomy and physics have destroyed the separate independence of space and time and their immutable self-identical universality; they are no longer containers or envelopes. The terms "space-time" and "relativity" broadly summarize the recent achievement. The transformability of the immutable atoms we have already noted. The Greek-medieval cosmological-ontological structure of thought has, in astronomy and physics, been utterly destroyed. The new has in these areas been liberated from the old.

IX.

By a complicated historical route we need not follow, the typical problems of "modern" philosophical systems were generated as a result of the new astronomy and physics convert-

ing the *physical* into the *material*. The words "natural" and "physical" are derived from Latin and Greek expressions which designate the same subject-matter. The Latin *natura* is, with respect to philosophy, a translation of the Greek *phusis*, whence the English noun "physics" and the adjective "physical." From the standpoint of Greek cosmological-ontological science and that science affected by supernaturalism in medieval philosophy, the identification of the physical and the material is totally unimaginable, totally incomprehensible. In Greek-medieval philosophy, physical and material were radically different in kind—as different as is the formed from the formless. The physical (*phusis*) determined the growth of seed to mature form; the movement of growth is movement towards ends, terminal goals; consequently, the physical is involved with meanings akin to what is highest in human purpose and value. Although the physical (*phusis*) lacked the necessary self-activity of ideal and rational Being and therefore was not subject to science in its supreme form, it was subject to a lower mode of knowing. Furthermore its performance was sufficiently regular to serve all man's lowly, common needs and the higher purposes of the political and moral life of free men.

When the physical became identified with the material, the status and understanding of the human estate—first and foremost of the human mind—underwent a great change. Greek theory envisioned the human mind and its operations as the culminating actualization of vital activities. In the accepted ontological cosmology there existed hierarchical grades of life and a corresponding hierarchy of culminating actualizations or grades of "mind." The lowest human grade was sensation, the highest nous; the lowest had to do with the most imperfect, the most subject to change; the highest had to do with the most perfect, with Being, eternal and immutable.

Although the cosmological-ontological hierarchy of Greek philosophy was a hierarchy of fixed species it nevertheless constituted a Cosmos. All constituents, from the lowest grades to the highest grades, from physical aspects to ideal, spiritual aspects, were harmoniously, indeed one may say beautifully, unified systematically.

The physics and astronomy of Galileo and Newton shattered the foundations of the Greek cosmic structure. The identification

of the physical as material substance eventuated in the establishment of mind as a separate and independent substance. The unity of the Greek system was thus destroyed. Nature was split into two parts—if the word “parts” can be applied to two substances having nothing in common with each other. Matter and mind were out-and-out opposites: matter was external, mind internal; matter was objective, mind subjective; matter was impersonal, mind personal. The study of Matter, of Physical Nature, was the domain of the new sciences. The study of Mind, of Human Nature, was the domain of philosophy. From Locke onwards, treatises on Human Nature were devoted not so much to Psychology as to Epistemology—to explaining how the inner and personal could know the outer and impersonal. In classic philosophy, theory of knowledge was a concern of Logic; Logic’s displacement by Epistemology in “modern” philosophy is profoundly symptomatic.

With Human Nature disconnected from Physical Nature, epistemological solutions produced a bewildering variety of insoluble puzzles. But the enterprise was not abandoned. The pinnacle was reached when the epistemological problem became: How is Knowledge possible anyway, *überhaupt*? And this at the very time when Natural Knowledge was in fact advancing more securely and more rapidly than at any previous time in human history!

X.

The dualism of matter and mind may no longer overtly supply currently dominant philosophical problems with their *raison d'être*. The assumptions underlying the cosmic dichotomy have, however, not been eliminated; on the contrary, they are the abiding source of issues which command today the attention of the very philosophers who pride themselves upon having replaced the philosophical “thinking” of a bygone period with a mode of treatment as exact as the former discussions were sloppy. One striking example is found in the efforts now put forth to provide “foundations” for science in both its physical and mathematical aspects. In formulated statement, this concern differs from that of how knowledge is possible anyway; no ex-

PLICIT reference is made to the chasm between knowing subject as mental and "object to be known" as physical as the source of the problem. But what is not explicit is, in principle, implicit. It is assumed that science as a total enterprise is inherently non-self-supportive, that it is necessarily incapable of supplying itself with whatever "foundations" it may need and hence it is the task of the new type of rigoristic philosophers and their Logic to do for science what science cannot do for itself.

In view of the fly-blown condition of most of what passes as "logic" today there is something outright comical, rather than merely ironical, in the assumption that Logic is the author of and authority for the required foundations. This claim of competence is supposedly based on the fact that the new Logic is formulated in esoteric symbols which simulate, at least in form, the symbolism of mathematics. But the "foundations" of mathematics have undergone a radical, indeed, a revolutionary change. The old view that mathematical subject-matter is deduced from an ultimate set of self-evident or axiomatic truths has been supplanted by the view that the ultimates, the "foundations" of the mathematical enterprise are deliberately designed postulates. The method of postulation puts mathematical subject-matter beyond the need of any "foundation" supplied from without. The old view produced Kant. The ultra-moderns are, unwittingly, neo-Kantians of a very special and very peculiar sort. Roughly to place their efforts in historical context, they attempt to free the *a priori* conditions of Kantian philosophy from hampering psychological properties and to present them as a rigorous logical structure arrayed in quasi-mathematical symbols.

I pointed out earlier that the creation of the new physics involved the integrative use of experiments, hypotheses and mathematics. This new way of knowing has, in the intervening centuries, become the most thoroughly tried and tested method of knowing that exists and the conclusions attained by its use are, of all that is humanly known, the most securely established. To be "most securely established" is of course a far cry from being "infallibly established." Only the immutable and eternal can be known infallibly. Underlying the search for "foundations" outside of natural science to justify the scientific character of natural science is the ancient, unavowed, principle that the necessary requirements of scientific knowing are the immutable

and eternal and that only philosophy has access to the transcendently supra-natural realm which is their abode.

The history of scientific knowing is a history of experimentally developing methods of experimenting, testing, checking, controlling both inquiry and conclusions. The unremitting self-discipline of scientific knowing is infinitely more severe than the discipline of theory of knowledge. The most elementary lesson to be learned from observation of scientific inquiry is the primary and prime importance of making sure of factually observable data as the needed "foundation" for a theoretical view. But philosophers who are determined to supply physics with "foundations" that are not subject to spatial-temporal contingencies have nothing observable to observe. They are unaware of the absurdity of seeking foundations outside the methods of knowing which have been tested and retested in the course of the very operations of inquiry in which they are put to use.

Another striking example of the persistence of the assumptions underlying the cosmic dichotomy is the (literally) painful effort by up-to-date philosophers to find a justification for "induction" outside and independent of the operations constituting the ongoing continuum of scientific inquiry. It is an old cosmological view that some things are inherently of and by their own nature merely *particular* and therefore are by nature or essence incapable of validating generalizations. It is an obvious consequence that "the problem of induction" is insoluble when the old assumptions are introduced into the new science; whence the laborious attempts to solve the problem outside the domain of natural science.

In actual scientific practice, the ground of inference, a much less ambiguous word than "induction," is not numbers of particulars but the outcome of experimentally controlled analysis which is treated, on the basis of what has been scientifically verified in the past, as a *typical* case. If it be not fully typical it will have its a-typicality and degree of variant error disclosed and determined not by ultimate speculative principles invoking essential Being but by operational demonstrations and evaluations of experimental consequences in continuing scientific inquiry.

A third striking example of the persistence of ancient assumptions in ultra-modern philosophy is provided by its treatment of scientific "law." The dualistic anthropomorphism of laws that

“govern” particulars and of particulars that “obey” laws is nowhere professed by sophisticated philosophers. But in some form or other, the distinction between existences as *particular* (inherently and by nature) and laws as *universal* (inherently and by nature) persists. Indeed the view that a law is a recurrent uniformity is often regarded as marking the triumph of positivism over metaphysics when in fact it represents an ontologizing of a distinction of functions, of services performed, in the conduct of inquiry.

The commonest of all philosophical fallacies is the fallacy of converting eventual outcomes into antecedent conditions thereby escaping the need (and salutary effect) of taking into account the operations and processes that condition the eventual subject-matter. When we avoid this fallacy and consult the facts of scientific inquiry we find that the discovery of “law” is not the end-in-view of mature physical science.

The facts of science enforced recognition on the part of those who kept in actual touch with developments in physical science that its subject-matter consists of spatial-temporal connections in which the spatial-temporal component is the determined conclusion of inquiry quite as much as are the methods that are used. This is fatal to the notion that laws as uniformities are the objectives of science. It shows philosophers who observe—heeding as well as noting—that whatever else the objectives of recent developments in scientific inquiry are or are not they are of the order of *events*.

When viewed in contemporary light, the objective sought by scientific inquiry is seen to be an order of fact that is indefinitely inclusive with respect to its temporal-spatial range, and that so-called “laws” are useful instruments in bringing particulars previously unplaced in an existential space-time continuum within the order that is under construction or reconstruction.

To sum up: A scientific law is a formulation which *per se* is neither universal nor particular; it is a means by which factual or spatial-temporal connections are instituted that introduce continuity where there had been spatial-temporal interruptions and isolations.

In the course of its continuing operations of inquiry and re-inquiry, physical science discovered that its best, most securely verified conclusions, are of some order of probability. Philoso-

phers wittingly or unwittingly motivated by ancient cosmological-ontological assumptions responded negatively to this development. Committed to the view that necessity (not probability) is of the essence of true science and that necessity demands the immutable and eternal, they redoubled their efforts to shore up natural science with transcendent, supra-natural principles mere science inherently lacked and desperately needed.

XI.

Abstractly considered, one might reasonably expect that the cosmic status "matter" attained at the very outset of modern science would result in a thoroughgoing materialistic philosophy of nature. But the efforts in this direction were rare and of no great moment in determining the dominant course of philosophy. Why? The origins of the "warfare of science and religion" provide the answer. The warfare early received open and important acknowledgement because what was at stake was not just religion as a personal predilection nor just theological-ontological theory; warfare broke out and persisted because personal religion and theology were organized in powerful institutions, deeply rooted in the culture of the period.

When the physical was identified with material substance, the Greek-medieval doctrine of the mind was fixed by sacred and erudite tradition in moral-religious beliefs and institutions; its sudden abandonment (supposing the impossible) would have created intolerable intellectual as well as moral-religious chaos. Concretely considered, thoroughgoing materialism was then only a metaphysical theory, without institutional-cultural support. Dualism, on the other hand, was responsive to and supported by the historical-cultural situation.

The short-run effects of dualism must be distinguished from its long-run effects.

When mind acquired the status of an independent and separate order of existence, philosophers, as a matter of course, cultivated a method of knowing independent and separate from the physicists' method of knowing physical nature. The short-run effect of severance from "the external world" existentially and

methodologically was to enhance the importance of human nature. For the first time in history, the study of human nature had opening before it a career in its own right. Philosophers gave priority, even primacy, to the study of mind, the inner and mental. They proclaimed that mind was concerned with Nature, not as it presented itself externally, but as it presented itself to man as he internally and really is, intimately, immediately.

In the short-run the "subjective" note in modern philosophy caused little concern; in the long-run it became a major source of insoluble philosophical problems.

Another long-run effect of the "subjective" bias was the building up and solidifying of distorted interpretations of the most important phases of human life—interpersonal relations and their connection with the origin, status and dynamics of institutions.

XII.

It may safely be doubted whether classic Greek philosophy has any reality for a modern philosophical lecturer outside the history of philosophical doctrines. Yet in its own day those to whom it gave a high order of intellectual and emotional satisfaction were among the best informed and ablest of men. Today, for men neither stupid nor unlearned it is intellectually and emotionally satisfying to solve all basic problems by the unclassical "modern" dualism of matter and mind; of the actual and the ideal; of the merely empirical and the supremely rational; of physical things which are mere means, never ends, and spiritual things that are inherently, essentially, necessarily ends-in-themselves and must be treated reverently even though it is admitted that the means at our disposal are of such an inferior order that there is no possibility of realizing the ends-in-themselves. Indeed, to many persons this very impossibility is only added proof that the ends-in-themselves are Ideals which *ought* to be realized. We have here another case of changing the words in which an old doctrinal view is stated while the old doctrinal assumptions are retained.

Popular language does not employ the technical phraseology used in philosophy to formulate the dichotomy, but it is cele-

brated in familiar speech. There is the realm of the otherworldly, of ultimate and eternal values, necessarily exempt from the contingencies to which mundane things and human existence are subject. Whatever may be the function of the ultimate and eternal in this life it is not to increase security here and now by reducing the number and/or intensity of the contingencies we encounter and the chances we run. Diderot, the great spokesman for the Enlightenment in France, saw how mathematics could be made the instrumentality of insurance against the evils wrought by accidents when it was not possible to prevent accidents from occurring. His teachings find wide application today with regard to accidents that are considered physical or material. When, however, insurance against "accidents" due to maladjustments in the social order is urged and sought for, we hear that such a course weakens self-respect, slackens manly resolution and destroys the motive for providing for the future that is the ground of man's willingness to engage in onerous work. The current two-faced attitude toward insurance against mishaps is a simple and clear example of the consequences of a morality which removes the link joining means-ends and substitutes an unbridgeable chasm. It typifies how we face one way when the subject involved is located in the profane territory of the material and face the other way when the subject involved is located in the sacred realm of the moral, spiritual and ideal.

The doctrine of ideal, separate and independent ends-in-themselves is one of the prime means whereby in modern philosophy morals, as a subject of knowledge, maintained its fixed devotion to the eternal and immutable. The more everyday commonsense and scientific knowings were clearly shown to be relational, concerned with spatial-temporal events and existences, the more did moral knowledge and moral theory become concerned with espousing eternal and immutable absolutes. The doctrine was advanced that moral knowledge is *a priori*, that its organ and seat are unique and isolated in the most sacred element of the psychic constitution of man. This doctrine may be dismissed as a matter of technical philosophy, of interest only to those occupied with the scholastic aspects of abstract theory. It is, however, anything but an abstract technicality that a denigrating discrimination was made between the truly moral and the mundane and secular when mundane and secular activities were

absorbing a continually increasing share of human interest and commanding an ever-increasing amount of the attention and energy of mankind.

Absolutistic supra-rational moralists made common cause with traditional supernaturalists (of various theological persuasions) in denouncing "secularism" as the major, if not the sole, *fons et origo* of the evils that beset mankind. A denunciation of "secularism" could be immensely valuable if (a mighty if) its purpose and method were to focus attention on the actual pervasive uncertainties, confusions, deep divisions, tensions and conflicts that are the inevitable consequences of failure to develop means-ends relevant and equal to the problems created by vast, ongoing transformations in the modern world. The dualisms of philosophic theory are but a pale reflection of these problems—the complex of difficult moral problems constituting "secularism." But instead of helping to clarify our moral problems and giving guidance in solving them, the supra-rational moralists and traditional, institutionally supported supernaturalists do just the opposite. All the better to glorify the absolute, eternal and immutable, they incessantly disparage, denounce and bemoan mundane, secular life; they pronounce it to be inherently low, "fallen," or a trivial order of existence.

It was natural (in one of the many senses of that word) for man prior to the rise of scientific knowing as it is now practiced to have recourse to that which was taken to be so inherently fixed, so forever settled, that it and it alone could be depended upon. But now that the dependability of spatial-temporal subject-matter for warranted knowings and knowns has been massively demonstrated by science, there is really no longer any need to search for the treasure and guidance of wisdom in the unnatural kingdom of eternal and immutable absolutes.

XIII.

The identification of the distinctively human with the inner and private made psychology or whatever was taken to be the science of the inner and private a prime factor in originating and propagating the creed of economic laissez-faire liberalism or individualism. The legal and political inheritance from feudalism

obstructed, deflected and distorted the movements that constituted "the orbit of innovation"—the liberation of the activities of individuals from the heavy hand of precedent, tradition and government.

Because the innovative movements had organized embodiment only in voluntary associations of persons having no official status, the conflict of the new with the inherited institutional order was conceived to be a conflict between irreconcilable antagonists—the individual and the state. The state was, by inherent nature, oppressive; the freedom of the individual was, by inherent nature, the freedom of a self-contained complete individual. The proper function of the state was tangential and negative, namely, to provide sanctions for the infringement by individuals of the freedom of individuals. The state could not act to fulfill a positive social purpose, no matter how urgent and obvious, without necessarily violating the sanctity of natural law and the inalienable rights of its citizens.

The appeal to natural law and natural right undeniably played a part in promoting greater freedom in the conduct of economic affairs. It also undeniably had anti-social consequences. It degraded political law and rights to the level of sheer artificiality, totally devoid of moral authority. Any attempt to regulate or control economic enterprise in the public interest was denounced as interference by merely man-made legislation with the beneficent operations of "natural law" and hence necessarily destructive of "freedom."

Laissez-faire individualistic liberalism outlived its original liberating function; it became hardened and fixed in regressive social attitudes and institutional forms. Among the opponents of the increasingly anarchic tendencies of laissez-faire liberalism were those who, early in the 19th century, identified restoration of social stability and order with return to the moral-political absolutism of medieval authoritarian organization. The neo-medievalists, besides romanticizing the earlier epoch, ignored the fact that the industrial revolution had already effectively destroyed the pre-scientific, pre-technological, pre-democratic foundations of feudalism.

Scientific economists do not make the mistakes of the neo-medievalists. But in their own peculiar "scientific" ways, they also fly in the face of facts.

The subject-matter of full-fledged "scientific" economics has been identified with aspects of life economists designate as *material*. The consequence of this identification or definition is to separate and isolate the economic from the moral and political.

I doubt if it is possible to overstate the importance of the dualism thus set up, as if on basic ontological ground, between the sphere of economic activity and the sphere of moral-political interests and values. If any construction of a theoretical nature could be more disastrous to human welfare (in the broadest sense of the term) I confess ignorance as to what it could be. Nothing could more effectively make moral philosophy irrelevant and more completely reduce political philosophy to futility.

It is a fact that modern means of production and distribution of commodities are the consequences of technologies made possible by physical (or material) science. But it is also a fact that the sphere of economic activity—the economic enterprise in all its vast and intricate complications—is inextricably enmeshed in social life, that it serves human needs, personal and institutional, and is to be judged by how well or ill it serves them.

It can be confidently affirmed that every aspect, content, structure and phase of human life has been radically changed, directly or indirectly, for weal or woe, by proliferating and accelerating industrial-technological revolutions. For example: they have changed the structure of family life, the status of women, the relations of the sexes, of parents and children; education has been changed in every respect, quantitatively and qualitatively; vast populations have been urbanized, imposing new occupations and new ways of life; transportation and communication have been revolutionized, with incalculable human consequences; intra-national and international relations, friendly and hostile, cooperative and competitive have been multiplied and intensified; local and world-wide class and race problems have been generated or exacerbated. And overshadowing all, the industrial-technological revolutions are largely, if not wholly, responsible for two world wars in one generation and the threat of another of ultimate destructiveness. The cumulative, ramifying consequences of wars past and in preparation constitute the heart and lifeblood of all our problems, from personal affairs of daily life to world-wide affairs of social and political order, industry, trade and finance.

Scientific economists are inspired by a dehumanized conception of the nature of science, still widely prevalent. The great majority of those who now attribute the scientific backwardness of social subjects to absence of proper methods of inquiry advocate, as the remedy for this grievous state of affairs, the outright adoption of the techniques of inquiry that have proved themselves in dealing with physical subject-matter. They are unmindful of the fact that these techniques have worked successfully just because they were designed for experimental operations with subject-matters from which human (value) considerations were explicitly ruled out.

Economists are only one class of "scientific" inquirers into human subjects who cannot professionally admit the part played by need, purpose and an unceasing valuing (as distinct from evaluating judgments) in the generation and management of human affairs.

But whatever reasons scientific economists may use to justify excluding from their professional concern the human consequences of economic enterprise, philosophy cannot agree that economics is a domain having its own independent subject-matter and career without denying its claim to be comprehensive in scope. Philosophy which does not take into account the economic enterprise and its human consequences is an escapist intellectual gymnastic.

The full bearing of this discussion of economic activity in its relations to the problems which are dominant in life and which therefore should be dominant in philosophy will be postponed till certain other philosophic questions have been considered. As we shall see, the challenge offered to philosophy can be met only by resolute willingness to reformulate its problems with the systematic thoroughness demanded by the conditions of the present crisis.

XIV.

It can hardly have escaped the attention of the reader that as the discussion has proceeded a change of emotional tone has occurred; it may even have aroused querying whether a shift in intellectual substance, amounting to an internal conflict, may

not have occurred. Whatever may have been the attitude of Lord Acton in the passage I quoted there is no doubt that the comments of the present writer hailed the facts Lord Acton recorded as the initiation of an era in which man's relations with nature offered the promise of a change from conformity to invention and thereby from subjection to command. Yet no sooner had the reader been asked to consider that exhilarating prospect than he found himself confronted with a world literally torn more deeply and sharply apart than ever before since man appeared on earth.

The contrast is surely there and not as a rhetorical or dramatic device. The contrast is there because it is found in the course of events, especially the events of cultural history as reflected in the accounts given of them in the story of philosophy. If no attempt had been made to report in generalized terms what was going on it might have escaped notice that it takes time for events to disclose in which direction they are moving, that in the very degree in which a new movement is felt to be in a new orbit, to be revolutionary, it will of necessity be reported in terms which inject into the report habitudes and dispositions which are residues of bygone history. It may even be said that the more acute and more assured is the sense of revolutionary break, the more will it be necessary to make the intellectual reckoning under conditions that are going to be gradually, more or less insensibly, replaced. Not till a new movement is mature in development, until it is a fact, something done, can it be perceived in its own perspective.

The persuasion that actuates the following section of this Re-Introduction is, then, that events of the present century, including positive and negative alike, taking accomplishments and the breakdowns together, indicate the path to be followed in order to arrive at an awareness of the orbit of change-in-process during the past four centuries or so. This path will enable us to observe with some effective degree of intellectual clarity the clogging, deflecting and distorting factors inherited from pre-scientific, pre-technological and pre-democratic conditions of living and knowing. In consequence, it will enable us to pursue with reasonable degree of confidence and resolution the orbit of change; having the advantage of sense of direction, the orbit will become clearer as it becomes increasingly unified.

I know of no more promising place from which to attempt to

foreshadow the direction to be pursued by philosophy than to go back to the concern of the age (now drawing to a close) with *experience*. We must here view experience not from the side of the stammering account given of it in philosophy but must see the new faith which found expression in our common tongue, our idiomatic speech as well as in the various disjointed because independent movements undertaken in pursuit of experience. Thus to see and grasp experience it is necessary to overcome the cultivated inability to see what is to be seen in the continuities displayed by what is in process and only by what is in process.

Editor's Note

A crowd of burdensome events in September-October 1949 interrupted Dewey's work on the Introduction. The interruption was temporarily renewed several times by refreshing changes in work and by an enervating bout with a virus. In March 1950 and again in July Dewey considered getting back to work on the Introduction but on both occasions the lure of other projects was too enticing. When Dewey at long last returned in January 1951 to where he left off in August 1949, he transformed the task of finishing the Introduction into a formidable new problem.

J.R.

Were I to write (or rewrite) *Experience and Nature* today I would entitle the book *Culture and Nature* and the treatment of specific subject-matters would be correspondingly modified. I would abandon the term "experience" because of my growing realization that the historical obstacles which prevented understanding of my use of "experience" are, for all practical purposes, insurmountable. I would substitute the term "culture" because with its meanings as now firmly established it can fully and freely carry my philosophy of experience.

I am not convinced that the task I undertook was totally misguided. I still believe that on theoretical, as distinct from historical, grounds there is much to be said in favor of using "experience" to designate the inclusive subject-matter which characteristically "modern" (post-medieval) philosophy breaks

up into the dualisms of subject and object, mind and the world, psychological and physical. If "experience" is to designate the inclusive subject-matter it must designate both what is experienced and the ways of experiencing it.

There is, assuredly, nothing novel in holding that philosophy is distinguished from other intellectual or cognitive undertakings by the comparative comprehensiveness of its subject-matter; nor is it innovative to maintain that a linguistic expression is needed to name philosophy's singular distinction. But by an ironical twist of events which I failed to comprehend, the *theoretical* grounds that can be cited for using "experience" as the needed name are *historically* identical with the obstacles that effectively stand in the way of the name being understood in the senses I intended.

The historical obstacles are now so conspicuous that I can at times but wonder how they came to be overlooked. There was a period in modern philosophy when the appeal to "experience" was a thoroughly wholesome appeal to liberate philosophy from desiccated abstractions. But I failed to appreciate the fact that subsequent developments inside and outside of philosophy had corrupted and destroyed the wholesomeness of the appeal—that "experience" had become effectively identified with experiencing in the sense of the psychological, and the psychological had become established as that which is intrinsically psychical, mental, private. My insistence that "experience" also designates *what* is experienced was a mere ideological thundering in the Index for it ignored the ironical twist which made this use of "experience" strange and incomprehensible.

The name "culture" in its anthropological (not its Matthew Arnold) sense designates the vast range of things experienced in an indefinite variety of ways. It possesses as a name just that body of substantial references which "experience" as a name has lost. It names artifacts which rank as "material" and operations upon and with material things. The facts named by "culture" also include the whole body of beliefs, attitudes, dispositions which are scientific and "moral" and which as a matter of cultural fact decide the specific uses to which the "material" constituents of culture are put and which accordingly deserve, philosophically speaking, the name "ideal" (even the name "spiritual," if intelligibly used).

It is a prime philosophical consideration that "culture" includes the material and the ideal in their reciprocal interrelationships and (in marked contrast with the prevailing use of "experience") "culture" designates, also in their reciprocal interconnections, that immense diversity of human affairs, interests, concerns, values which compartmentalists pigeonhole under "religion" "morals" "aesthetics" "politics" "economics" etc., etc. Instead of separating, isolating and insulating the many aspects of a common life, "culture" holds them together in their human and humanistic unity—a service which "experience" has ceased to render. What "experience" now fails to do and "culture" can successfully do for philosophy is of utmost importance if philosophy is to be comprehensive without becoming stagnant.³

Culture "comprises inherited artifacts, goods, technical processes, ideas, habits, values. Social organization cannot be really understood except as a part of culture." Even this brief quotation indicates the inclusive or comprehensive summarizing of the conditions and aspects of human life designated by the word. Artifacts include habitations, temples and their rituals, weapons, paraphernalia, tools, implements, means of transportation, roads, clothing, decorations and ornamentations, etc., etc. They, together with the technical processes involved in their use, constitute the "material aspect of culture." But then follows the significant statement: "The material equipment of culture is not, however, a force in itself. Knowledge is necessary in the production, management and use of artifacts . . . and is essentially connected with mental and moral discipline, of which religion, laws and ethical rules are the ultimate source. The handling and possession of goods imply also the appreciation of their value." The kind of cooperation involved in *production* of goods and the common modes of *enjoyment* of the products "are always based on a definite type of social organization." In short, "material culture requires a complement . . . consisting of the body of intellectual knowledge, of the system of moral, spiritual, and economic values, of social organization and of language."

The intimate connection of philosophical systems with culture is further clarified by the fact that "the formation of sentiments

3. See Malinowski's article "Culture" in the *Encyclopaedia of the Social Sciences*, edited by Alvin Johnson.

and thus of values is always based on the cultural apparatus in a society," the sentiments and values defining man's attitudes "toward the realities of his magical, religious or metaphysical *Weltanschauung*." And while I cannot dwell upon its implications here, I cannot refrain from quoting the statement that "Culture is *at the same time* psychological and collective."⁴

4. The quotations are from Vol. 4, pp. 621-23. The italics in the last quotation are mine.