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PLATONIC SYMMETRIES

THERE is a sense in which the continually multiplying certainties of science—mathematically predicted and experimentally confirmed—are becoming a source of deep depression. The more precise information we acquire, the less human sense we make out of it all. The great leap from knowing how the world works to an understanding of what it means no longer seems likely, or even possible. Our knowledge, in other words, while technically expanding, only amplifies our essential ignorance, giving it greater scope.

Hannah Arendt writes of this in *The Human Condition:*

> The rise of the natural sciences is credited with a demonstrable, ever-quickening increase in human knowledge and power; shortly before the modern age European mankind knew less than Archimedes in the third century B.C., while the first fifty years of our century have witnessed more important discoveries than all the centuries of recorded history together. Yet the same phenomenon is blamed with equal right for the hardly less demonstrable increase in human despair or the specifically modern nihilism which has spread to ever larger sections of the population, their most significant aspect perhaps being that they no longer spare the scientists themselves, whose well-founded optimism could still, in the nineteenth century, stand up against the equally justifiable pessimism of thinkers and poets. The modern astrophysical world view, which began with Galileo, and its challenge to the senses to reveal reality, have left us a universe of whose qualities we know no more than the way they affect our measuring instruments, and—in the words of Eddington—"the former have as much resemblance to the latter as a telephone number has to a subscriber." Instead of objective qualities, in other words, we find instruments, and instead of nature or the universe—in the words of Heisenberg—man encounters only himself.

Our scientific portrait of Nature, in short, is so selectively designed that it amounts to a mirror image of ourselves. It is constructed out of the answers we get to the particular questions we ask, and is by no means the result of Nature speaking for herself. Such science is more soliloquy than dialogue with the natural world. Recognition of this has made some of our most distinguished scientists ask philosophic instead of scientific questions.

It is easy to find examples of the extreme provocation behind this change. In the *Scientific American* for last November a contemporary physicist, Yoichiro Nambu, attempts to explain the sub-atomic particles known as "quarks," using language meant to be understandable by the general reader. What are quarks? They are entities invented by physicists in order to make their theories fit with experience (experiment). The *Scientific American* may have a few readers who will be equal to the intent of this article, but for the great majority it is bound to seem an incomprehensible *tour de force* of the scientific imagination. The central problem inquired into by Yoichiro Nambu is why quarks, if they exist, never appear by themselves, in isolation. His article is a review of the competing theoretical explanations of their confinement behind the scenes of the scientifically visible. He says in his last paragraph:

> Quarks are a product of theoretical reasoning. They were invented at a time when there was no direct evidence of their existence. . . . Now theories of quark confinement suggest that all quarks may be permanently inaccessible and invisible. The very successes of the quark model lead us back to the question of the reality of quarks. If a particle cannot be isolated or observed, even in theory, how will we ever be able to know that it exists?

Science, in other words, is conducted at a level that has lost almost all touch with the world of common sense. It is exactly as Ortega said in *The Idea of Principle in Leibnitz:*

> We find ourselves facing a form of knowledge totally different from that which this term signifies in

its first spontaneous and full sense. Physicists themselves call this blind knowledge "symbolic knowledge" because instead of knowing the real thing, it recognizes its sign in a system of signs and symbols.

No "theory of symbolic knowledge" has yet been constructed which solves rigorously the question of the extent to which this can be considered authentic knowledge. It is nevertheless evident that, whatever its advantages, it cannot pretend to be exemplary when the model of knowledge is being sought.

So physics, on the one hand, renounces all talk of Reality and contents itself with probability, while on the other, it renounces all pretense of being knowledge in the sense of the existence of Reality in thought.

With this the position of philosophy is radically modified as compared with that in which it found itself during the modern period.

As a result, philosophy has recovered its independence. Reversing Immanuel Kant, Ortega declares: "The method of philosophy is, at bottom, approximately the opposite of the method of physics."

A recent comment by Werner Heisenberg (at the Smithsonian Symposium held in 1973 on the five hundredth anniversary of the birth of Copernicus, reported in the Smithsonian volume, *The Nature of Scientific Discovery*) supplies decisive evidence of the change in the scientific approach. Discussing the role of tradition in science, and also the need to break with past ideas, Heisenberg said:

Many experimental physicists nowadays look for "quark" particles, particles with a charge of one-third or two-thirds of the charge of the proton. I am convinced that the intense search for quarks is caused by the conscious or unconscious hope to find the really elementary particles, the ultimate units of matter. But even if quarks could be found, for all we know they could again be divided into two quarks and one anti-quark, etc., and thus they would not be more elementary than a proton. You see how extremely difficult it is to get away from an old tradition.

What is really needed is a change in fundamental concepts. We will have to abandon the philosophy of Democritos and the concept of fundamental elementary particles. We should accept instead the concept of fundamental symmetries, which is a concept out of the philosophy of Plato. Just as Copernicus and Galileo in their method abandoned the descriptive philosophy of Aristotle and turned to the structural science of Plato, so we are probably forced in our concepts to abandon the atomic materialism of Democritos and to turn to the ideas of symmetry in the philosophy of Plato. Again we would return to a very old tradition.

Heisenberg amplified what he was getting at here during the discussion of his paper. Asked what sort of break with tradition he proposed, he spoke of the ontological problem of "whether mathematical structures are only forms in our mind, or whether they are there before the human mind was ever created." He continued:

There is a very great difference between this kind of objective idealism of Plato and, let us say, the more subjective idealism of the 19th century. I would definitely be in favor of the objective idealism of Plato.

I would simply say that these mathematical forms are what, if I can express it in a theological manner, are the forms according to which God created the world. Or you may leave out the word God and say the forms according to which the world has been made. These forms are always present in matter, and in the human mind, and they are responsible for both.

I would not say that mind is something entirely different from the material world. . . . But I would like to say that the mathematical structures are something behind the whole thing, or beyond the thing, not only in our mind. All mathematical laws would hold also on the distant stars. If there are some beings which, for instance, would develop the concept of number, then they would have the same theory of numbers as we have. Thus the mathematical structures are actually deeper than the existence of mind or matter. Mind or matter is a *consequence* of mathematical structure. That, of course, is a very Platonic idea. But I would always feel that is a reality.

Such reforms in the method of physics, Heisenberg said, will be very difficult, since there are practical details to be worked out, both experimentally and theoretically; but, he added, "I

do not believe that there will be any spectacular breakthrough, except for this change in concepts."

Since such developments are almost entirely within the province of the physicists alone, we turn to the thinker who has been such a fruitful source of inspiration to modern scientists. If so distinguished a physicist as Werner Heisenberg believes that we must look once more to Plato for guidance, it should be of general interest to recall Plato's view of the scientific enterprise, which he regarded in a mood very different from that of the earnest discoverers of our own period. In the *Timaeus* (his "cosmology"), he speaks of scientific inquiry as a sort of diversion—a relief to the mind after exhausting meditations about eternal things. Since scientific truths have no certainty, he says, but only probability, their pursuit may be undertaken as "a wise and moderate pastime." This characteristic uncertainty of science results from the constant change which goes on in nature. Everything is both becoming and unbecoming—being born and dying away. Yet science has nonetheless a value in that it studies the *reflection* in nature of the realities of the eternal world. The reflections, while very imperfect, are worth looking at.

The *Timaeus,* as noted by Edith Hamilton and Huntington Cairns, editors of the Pantheon edition of Plato's Collected Dialogues, is a particularly "open-minded" work. They say:

> Plato sets himself to think out physics and astronomy and biology. His temper of mind nowhere even approaches the dogmatic, but in this dialogue it does so least of all. He hesitates and questions as he does in none of his ethical discussions of his earlier work. The statements he makes are possible, so he declares, even perhaps probable, . . .

These prefatory remarks about Plato's method seem of particular importance. The editors also call attention to his frequent use of "myth" in what was intended as a scientific work. For Plato, myth is a way of getting past sensory illusion, but the modern reader is by no means ready for this strange mixture of fantasy with fact. His editors, therefore, warn:

> We must read the dialogue with such thoughts in mind because most of it is no longer to us what it was to Plato and through him to the men for centuries after, up to and into the Middle Ages, a statement of scientific truth combined with mythical truth in which great spiritual truths could be found. Inevitably we read it, at least to begin with, as an account of the incredibilities antiquity believed. . . . No doubt, as Plato said, he had relaxed . . . and was amusing himself by this kind of writing, but he was also feeling, as we no longer can, how reasonable it all was and quite possibly the very truth itself.
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> It is certain, however, that Plato would have taken with complete tranquility our modern skepticism. He would have pointed out that science cannot be accurately true since it deals with the temporal, the finite, the forever changing, never with the eternal. But yet the visible world is a copy, an image, of what is eternal and true. It is a changing reflection of that which is changeless and therefore, imperfect though it is, in it can be found the truth. . . . That is the matter of importance, not scientific accuracy, but to catch a glimpse of "the beyond, which ever thereafter the soul will strive to reach."

What sort of thing does Plato deal with in the *Timaeus?* Well, in addition to physics and astronomy and biology it includes the famous story of Atlantis, to the delight of unorthodox antiquarians and the irritation of conventional archaeologists. There is hardly any chance that this exciting tale of a lost continent beneath the Atlantic will ever be put aside, though we may continue to find the "mythical" element in it frustrating. Toward the end of the dialogue is a discussion of health which we propose to sample here, since it seems such a good example of Plato's splendid common sense. Having considered bodily ills at some length, he discusses the "disorders of the soul":

> We must acknowledge disease of the mind to be want of intelligence, and of this there are two kinds—to wit, madness and ignorance. In whatever state a man experiences either of them, that state may be called disease, and excessive pains and pleasures are justly to be regarded as the greatest diseases to which the soul is liable. For a man who is in great joy or great pain, in his unseasonable eagerness to attain the one and to avoid the other, is not able to see or hear

anything rightly, but he is mad and is at the same time utterly incapable of any participation in reason.

Turning to general rules, he speaks of the importance of treating both mind and body. He says:

> . . . we should not move the body without the soul or the soul without the body, and thus they will be on their guard against each other and be healthy and well balanced. And therefore the mathematician or anyone else whose thoughts are much absorbed in some intellectual pursuit, must allow his body also to have due exercise, and practice gymnastics, and he who is careful to fashion the body should in turn impart to the soul its proper motions and should cultivate the arts and all philosophy if he would deserve to be called truly fair and truly good. And the separate parts should be treated in the same manner, in imitation of the pattern of the universe, . . .
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> Now of all motions that is the best which is produced in a thing by itself, for it is most akin to the motion of thought and of the universe, but that motion which is caused by others is not so good, and worst of all is that which moves the body when at rest, in parts only and by some external agency. Wherefore of all modes of purifying and reuniting the body the best is gymnastics; the next best is a surging motion, as in sailing or any other mode of conveyance which is not fatiguing; the third sort of motion may be of use in a case of extreme necessity, but in any other will be adopted by no man of sense—I mean the purgative treatment of physicians, for diseases unless they are very dangerous should not be irritated by medicines, since every form of disease is in a manner akin to the living being, whose complex frame has an appointed term of life. For not the whole race only but each individual—barring inevitable accidents—comes into the world having a fixed span, and the triangles in us are originally framed with power to last for a certain time beyond which no man can prolong his life. And this holds also of the constitution of diseases; if anyone regardless of the appointed time tries to subdue them by medicine, he only aggravates and multiplies them. Wherefore we ought always to manage them by regimen, as far as a man can spare the time, and not provoke a disagreeable enemy by medicines. . . .
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> Now there is only one way of taking care of things, and this is to give each the food and motion which are natural to it. And the motions which are naturally akin to the divine principle within us are the thoughts and revolutions of the universe. These each man should follow, and by learning the harmonies and revolutions of the universe, should correct the courses of the head which were corrupted at birth, and should assimilate the thinking being to the thought, renewing his original nature, so that having assimilated them he may attain to that best life which the gods have set before mankind, both for the present and the future.

The puzzling idea that the courses of the head "were corrupted at birth" seems to have explanation earlier in the text, where Plato says:

> And in general all that which is termed the incontinence of pleasure and is deemed a reproach under the idea that the wicked voluntarily do wrong is not justly a matter for reproach. For no man is voluntarily bad, but the bad become bad by reason of an ill disposition of the body and bad education—things which are hateful to every man and happen to him against his will. . . . Further, when to this evil constitution of body evil forms of government are added and evil discourses are uttered in private as well as in public, and no sort of instruction is given in youth to cure these evils, then all of us who are bad become bad from two causes which are entirely beyond our control. In such cases the planters are to blame rather than the plants, the educators rather than the educated. But however that may be, we should endeavor as far as we can, by education and pursuits and learning, to avoid vice and attain virtue. . . .

Suppose—just suppose that the modern world had decided to adopt Plato for guide, philosopher, and friend, instead of evolving an incompatible mix of the Greek atomists with Aristotle, then adding the self-indulgent doctrines of the hedonists of the French revolution, and after that the theories of the mechanists of twentieth-century medicine?

In the matter of health, following Plato, we would depend on *regimen* instead of medicine. Living by this simple rule would constitute an enormous reform in our present methods of seeking health. One has only to read Ivan Illich's *Medical Nemesis* for exposure of the systematic error and delusion in our present approach to bodily welfare.

If it be contended that Illich is not a medical doctor, and not, therefore, "authoritative," one might turn to a paper in *Daedalus* (Winter, 1977) by Walsh McDermott, an editor of *Textbook of Medicine.* "The persistence of unvalidated technologies [in medicine]," he says, "leads not only to serious diagnostic error but to waste of skilled services and of money; it also contributes to the increasing load of medically induced, i.e., iatrogenic, disease and, by perpetuating untruths about serious chronic diseases, can give rise to untold human anguish and misery."

What about mental health? It is Plato's counsel that we learn how to think the way nature the universe thinks, and order our lives according to the larger flow of being around us. Could there be a more explicit brief statement of what the ecologists of our time are recommending, sometimes in almost the same language?

Then, when it comes to why we make such messes of things, Plato refuses to single out some class of evil-doers for blame, but says simply that all human beings labor under considerable difficulties—first the deceptions of the bodily senses, and then the cultural delusions spread by bad education and bad politics. Once we have seen this to be the common human condition, the course of intelligence, he proposes, is clear. We must do the best we can, using the methods and the balances that both nature and a higher sort of common sense suggest.

REVIEW
THE NERVES OF COMMUNITY

SOME years ago a MANAS reader in a southern state wrote musingly about the qualities of community. His remarks were partly concerned with size, and to drive this point home he said that in the time of the Medicis you could walk from one side of Florence to the other in less than half an hour. Within a few minutes one would encounter the full variety of the craftsmen who lived and worked in the city—the shops of weavers, goldsmiths, and others would be passed, or perhaps visited on the way. There might have been a printer or two, since this was the period of *incunabula,* which means books which came from the cradle of the craft of printing. Gutenberg was producing his 42-line Bible about the middle of the fifteenth century, and a historian estimates that as many as twenty million books might have been printed in the centers of Venice, Rome, Lyons, Paris, Cologne, and London before 1500. Caxton began turning out pamphlets in the 1470s and the first book printed in England was a collection of sayings of philosophers issued by Caxton in 1477. A little later he put into print Chaucer's *Canterbury Tales,* Malory's *Morte d'Arthur,* and a translation of Boethius' *Consolations of Philosophy.* The typical edition of books printed in those days was somewhere between 200 and 500 copies, partly because the soft metal used for type became too battered for more impressions.

These early printers were Renaissance Men who cared about the books they put into circulation. (Such attitudes are essential to the "nervous system" of true community.) If they thought something was worth reading, they printed it, sometimes making their own translations. Only a few people could read in those days—simply to be literate was a major accomplishment requiring determination and effort—with the result that readers were self-elected members of a comparatively small cultural community.

While urban populations are much larger now, and literacy (technical literacy) almost universal in the industrialized countries, the community of serious readers is still small. Actually, what we might term the natural *rhythm* of community life is constantly interrupted and blocked by the powerful mechanisms of the mass society. Social and moral intelligence now functions only under the difficulties created by the proliferating necessities of economic giantism, and to have any effect this intelligence must establish its own patterns and paths of expression against the grain of an established system based on acquisitive goals.

Fortunately, a few pioneers are making some headway in the attempt to devise new patterns. (Frontier articles in MANAS often report on these efforts.) The problems are various, but a major obstacle to all enterprises involving social (community) participation is the excluding pressure of existing institutions. For example, in an article on present publishing practice (June 9, 1976) we quoted a writer of exceptional merit who, after some initial success, found that interested readers were not able to find his books in the stores. "It's galling in the extreme," he said, "to see your work handled so cavalierly."

What is behind this frustrating and discouraging situation? Quite simply, the techniques of marketing are geared to the gross requirements of selling large quantities of books of indifferent quality to the mass society. The rules followed to produce the needed volume of sales shut out the interests of the community of intelligent readers.

In a letter to MANAS, John Holt, teacher and author of a number of valuable books on education (starting with the well known *How Children Fail*), writes of his own similar experience:

> Well, the problem has come to my doorstep, and I think I may see the outlines of a solution. A friend of mine told me that in October he searched hard through both New York and Los Angeles trying to

find a copy of my latest book, *Instead of Education.* No luck. The manager of one bookstore, on hearing that the book had come out in late April, about six months earlier, said with some surprise that, except for a few runaway bestsellers, they would never stock a book that old. So there it is.

Publishers bring out, two or three times a year, a huge list of books. They dump them, more or less, in the stores, and wait to see which ones will turn up lucky, which will catch some sort of public fancy or get some publicity. These, they push hard; their salesmen plug them, they give them follow-up advertising, make publicity efforts for them. The others they let go. If by good luck they have been able to sell the paperback rights, as was the case with my book, they figure that they have got their money out of the book and don't need to worry about it. If they have not sold the paperback rights, they figure that there is no use throwing good money after bad, and let the book go. In neither case do they ever pay it further attention. I suspect that the time period during which the salesmen make any effort to get it into the bookstores may be about three months. Because of this, even bookstores which *sold all their copies* of the book don't usually reorder. The people who run bookstores don't know or care anything about books, most of them, and if the salesmen from a particular company stop plugging a book, they stop carrying it.

For someone who has made it, and wants to continue to make it, his chief work is to write serious books—written in a style that anyone can read, but serious nonetheless—this is very discouraging news. But I think something may be done about it, following Ivan Illich's maxim that if an institution stops working for you, you not waste much time trying to make it into something different, but think about doing without it.

More specifically, I have decided to try to sell my own books—and, along with them, the books of a few other people. My plan is to make this known, not only in letters, conversations, and in my lectures, but also with a number of very small and selected advertisements in the kind of out-of-the-way publications that the people who might be interested in my books are likely to read, and that the big publishers would never think of advertising in. I can get the books at a discount from my publishers, and will sell them at something under the list price, so that people can get them cheaper from me than they could in the stores, even if they could find them there.

Along with my own books, I would like to try to sell a very small number of books by other people, some of them about children, learning, schools, education, some about other topics, but all books that I feel strongly about, and that do not seem to me to be getting enough exposure. In this way I hope to make good books better known and available to more people, to keep at least some of them alive when they might otherwise have died, and along with that make enough money so that I can continue my own work as a serious writer. We will see how it turns out.

If it turns out reasonably well, then one could say that John Holt found a way to get going one of the rhythms of community life. Obviously, there need to be multiple efforts in this direction. The work of the New Alchemists at Woods Hole on Cape Cod, Massachusetts, is another kind of rhythm established in behalf of the communities of the present and the future. The Rodale publications (*Organic Gardening* and *Prevention*) have been pioneers of such work at the broad level of nutrition and land-use reform. The Mom and Tots day-care center started in a Detroit ghetto by Nancy Milio got some vital currents of community going at another basic level. The more people who do such things, the stronger will become the community way of life, even while it is surrounded and clogged by the phenomena of giantism and quantitative goals. But some day, if these efforts gain the support they deserve, a new and perhaps better Florence will begin to emerge here and there; and, little by little, the "economic" aspect of human activities will shade into the background, where it belongs.

Meanwhile, however, economics has to have consideration, especially in relation to the courageous enterprises of people who are now both willing and able to start going some changes.

John Holt concludes his letter:

I would be most grateful if you would print parts or all of this letter, which I think might interest your readers, and let them know, if they want to get any of my books and can't find them in their local store (or even if they can), that they can get them from me. If people want to find out, in addition, what other books

they can get from me, they can do so by sending me a self-addressed, stamped envelope, at—

John Holt Associates, Inc.
308 Boyleston Street
Boston, Mass. 02116

When I first thought of doing this, it occurred to me that it might be a way in which other writers of serious books could keep their books alive and reach a larger part of their real audience. But since then I have thought that this is something that anyone might do, whether writer or not, who loved and believed in certain books and was distressed that they were so hard for others to find or buy. In other words, why couldn't we some day have many hundreds or thousands of small-scale amateur booksellers, each plugging, in whatever ways he might find effective, a small list of books he particularly cares about? I don't see any way in which the major publishing houses can be turned around, or the major book-distributing chains, but some such scheme as this might be a way to help keep serious writing alive in the country, and even perhaps make it prosper.

The qualities of community are out there, all over the country, in people. Beginning to live according to their rhythms would help to transform the institutions of the country, or rather, give healthful life to new ones—the kind based upon mutual understanding and trust.

COMMENTARY
TWO KINDS OF TRUTH

THIS week's lead, the "Children" article, and Frontiers seem to converge on a single, simple idea—that what is now going on is an enduring attempt to restore the crucial distinction between the truths of human living and the truths of "things." Going on is painful reconciliation to the discovery that the impressive exactitude obtained by the (scientific) study of things cannot be hoped for concerning the mysterious processes and transcendent purposes of our lives. What we live by cannot be isolated and subjected to laboratory test.

Take for example Freud's conclusion (see Frontiers) that he needed to stipulate telepathy as a fact because lying to patients was not only wrong but wouldn't work. Add the insight of experienced teachers that children, somehow or other, always sense hypocrisy in grown-ups. Such fundamental assumptions play a large part in the lives of all responsible human beings, but could you put them in the testable "propositional form" that Prof. Elbow speaks of in "Children"?

Freud was saying that the only thing that "works" is telling the truth. So are the teachers. Some excellent papers could probably be produced in support of this idea, but would anybody in, say, the advertising business read them? Empirical research in this enormous area (with uncountable and untraceable variables) could hardly produce anything more precise than Abraham Lincoln's classic dictum: "You can fool some of the people . . ."

What happens when you insist that only empirical, "thing"-type evidence is acceptable, whether the inquiry relates to the objective, natural world or to the qualities and lives of human beings? A lot of evidence on this question is now in, and it seems fair to say that what happens is that you accumulate a great deal of power over things and a great many destructive assumptions about human beings.

But to be specific, you have to wait. You have to wait until overwhelming evidence concerning the destructive effects of these assumptions is available—enough for it to be converted into "thing" or quantitative terms.

If only "thing" evidence is acceptable, you will pay no attention to, say, the proposition that the first casualty in war is truth, or to the prior idea that truth has importance in human life. You will say, with a lot of other people, that we have to have diplomats capable of plausible misrepresentation, that we would be in desperate danger without a CIA, and that in wartime (peacetime, too) a propaganda office is required for any major military or political undertaking.

Only years after, when the best members of an entire generation refuse to believe *anything* their parents and teachers say—"Don't trust anyone over thirty"—do we begin to wonder about all these "certainties." Only when we find that adversary methods have made impossible the good faith essential to community life do we ask ourselves a few old-fashioned, moral questions.

In short, when there is at last enough "thing" evidence to satisfy the skeptics (and some are *never* satisfied), it is far too late to do much more than pick up a few pieces and start all over again. And then, alas, too many people start out with high-toned emotional disregard of quite evident "thing" realities, requiring, before long, another Galileo to instruct us, once again, in the truths about mere things.

CHILDREN
. . . and Ourselves
THE NEED FOR BELIEVING

OSTENSIBLY, teachers instruct their pupils in "subjects," but these are unimportant details since the only thing of enduring value that children acquire from adults is some insight into what it means to learn or to know. Most people, and that probably includes most teachers, who grew up during the first half of the twentieth century absorbed what may be called a Cartesian attitude toward "truth." Descartes' only hope of reaching absolute certainty—and as a mathematician he would be satisfied with nothing less—lay in unambiguous clarity, the Q.E.D. kind of clarity. So Descartes began by being the great "doubter." Hannah Arendt traced this determination in Descartes to the widely-felt impact of Galileo's telescope. As Margaret Canovan says in *The Political Thought of Hannah Arendt* (Harcourt Brace Jovanovich, 1974):

> What the telescope and its confirmation of the Copernican hypothesis demonstrated beyond question was that neither man's unaided senses nor his reason could be trusted to discover truth. Truth, contrary to the age-old assumption, did not reveal itself to the observer, for all human beings since creation had been misled by appearances into supposing that the sun moved round the earth. Nothing is certain. Descartes was haunted by the nightmare that "reality" might be a dream, or that God who ruled the world might be an evil spirit who deceived man for his own amusement.

Skeptical Western intellectuals have been repeating this sort of thing to each other for centuries. Scientists above all were reared in the "school of suspicion," as Nietzsche put it. Wholly persuaded by Descartes, they made unbelief the foundation of their method. What, over a long period, has been the result? As we now recognize, the result has been to avoid or reject any sort of research or thinking which does not seem likely to provide clear "yes" or "no" answers. A scientist well-instructed in his method is not much interested in proposals which he can't hope to prove or disprove. He sees no progress except in working on *testable* propositions.

The logic seems impeccable, but wrong with it is the unnoted confusion of mathematical or logical certainty with *truth.* This becomes evident when we reflect on the fact that few if any of the ideals we live by, or try to live by, have the unambiguous certainty that the scientist demands. In *Writing without Teachers* (Oxford University Press, 1973), Peter Elbow embodies this realization in a revealing comparison of doubting with believing. We need to do both, of course, but while the arguments for doubting are popular and well known, the value of believing—or at least *entertaining* belief—has been ignored for too long a time. Mr. Elbow speaks of the two approaches as games:

> I think of the doubting game as the *dialectic of propositions* because the more you get ideas and perceptions into propositional form, the better it works. And I think of the believing game as the *dialectic of experience* because the more you get ideas and perceptions into the most fully experienced form, the better it works.

This is not an either/or argument, but advocacy of balance. The author thinks we have twisted our minds out of shape by stressing doubt alone as the road to intellectual salvation. His point is that few matters of importance submit to the straightjacket of a propositional form, and limiting inquiry to questions with unambiguous answers is reductionism with a vengeance. Mr. Elbow says:

> Descartes, the archetypal player of the doubting game when he doubted everything and then only readmitted dear and distinct ideas, was among other things engaging in a purification rite. He was re-enacting the parable of sweeping the house clean of evil spirits with a new broom. . . .
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> What is finally becoming clear, I think, through increased understanding of human emotional and cognitive functioning, is that you can *never* produce enough security clearance, no matter how new or powerful your broom: you can *never* keep out all wrong ideas, all disgusting or threatening ideas, all ideas tainted by previous tenants—all infection.

He also says:

> What kind of truth do you need? There is a dirtier and a cleaner truth, and the believing game settles, much of the time, for the dirtier kind: truth mixed with error. Many people would say you haven't got the truth until you have it free from error: part of our feeling for the word "truth" is certainty. But this feeling misleads us. If you have three answers and one of them is true, you *have* the truth—even if you don't know which one it is.
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> This may sound like sophistry but it's not:
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> 1. If you don't settle for this dirty mixture, you might not *get* that truth at all: if you are too fastidious and try to force assertions always to prove themselves at the door, you lose some of your best and most accurate perceptions (and those of other people working with you).
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> 2. You can benefit from the truth in this mixed dirty bag: if you look at, ponder, and digest all three answers—even if you still don't know which is right—you will learn from the right one. Your organism can do a lot of sifting that you cannot do consciously. . . .
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> How soon do you need your truth? Many activities that could be called intellectual—especially most school activities—fulfill their goals perfectly if they slow down on generating final answers and speed up the business of making people more perceptive and intelligent. The shape of the believing game is waiting, patience, not being in a hurry. Answers come later: finally comes a reorientation of thinking or perception that makes clear the answer to an issue that was raised much earlier. Now it is dear without argument or uncertainty: earlier you would have had to argue for an answer and you might have gotten the wrong one. . . . Waiting brings naturally a shared, accurate perception—closure. Week by week you improve the quality of the pool of perceptions and assertions you *refrain* from choosing among.
>
> So if you are playing the believing game and you need answers at the end of three months, spend the first 2½ months not-trying for them. If you only have an hour, spend the first 50 minutes not-looking for answers.

What is Mr. Elbow recommending? Thoreau's non-interfering attentiveness? Put off the problem-solving, he says, and *dwell* in the situation for a while. Experience various possibilities just as they come. There is of course some risk in this Taoistic program, but in the long run much greater risks may result from shutting out the ambiguous and non-propositional yet richly diverse tapestry of experience in the round. "What is needed is practice in learning to immerse the self *gradually* in the element perceived as dangerous—and it is just such a process that is constituted by the believing game."

While this essay in *Writing without Teachers* needs to be read entire to see how the author balances out doubting and believing, his listing of the dominant qualities of each habit of mind gets across the significance of the comparison. The doubting game emphasizes: detachment, fending off the new, disengagement, insisting on being literal, stubbornness, rigidity, pushing for security, being tough, harder, more piercing, being aggressive and beating down opposition, the competitive spirit, solitary and adversary activity. On the side of believing is: involvement, commitment, the exploring mood, openness, looseness, flexibility; and unaggressive, supporting, cooperative attitudes; the believer is good at listening, nonviolent, absorbent, yielding, friendly. These qualities, along with a few more, are arranged in two columns, doubting ones on the left, believing ones on the right. The author comments:

> Clearly I see great values in the qualities down the right side of the page. But I am not really knocking the ones on the left: they are necessary and valuable as long as they are balanced by their complements. But only the left side is reinforced by our culture's conception of intellectuality.

There is a sense in which Mr. Elbow is suggesting that we need to start all over again in thinking about knowledge of the human situation and how it is really obtained. After all, we begin our lives as believers. Trust is the law of existence, betrayal the exception that gets attention. We fear being wrong, getting fooled, making mistakes because it brings us pain, but meanwhile all our vital affairs that are based on trust, from the time we lie in our mothers' arms to the unwritten agreements among honorable persons, continue without notice because they work so well. There is a lot of "knowing" in all this—a kind of knowing in which skepticism is crude interference and no service at all.

FRONTIERS

Attitudes Toward ESP

SOME weeks ago (Dec. 8, 1976) we reported here on an article by J. B. Rhine in which he said that the interest in extra-sensory perception had grown so great in the colleges around the country that the requests from psychology departments for persons trained to work in psychical research were coming in faster than personnel could be developed. Psychologists, in short, are letting down the bars and are admitting the importance of ESP research.

There is another side to this story. In the *Journal of Parapsychology* for last September, R. A. McConnell, a teacher in the University of Pittsburgh, draws a striking contrast between the hospitality shown by eminent nineteenth-century physicists toward psychical research and the present indifference or even animosity shown by the physicists of today. Speaking of the closing years of the last century in England, Mr. McConnell (himself a physicist turned psychic researcher) says:

> Many of the leading intellectuals of that period were actively concerned with psychical research. I shall mention only the physical scientists.
>
> Among the early members of the [London] Society for Psychical Research were Heinrich Hertz, Marie Curie, Lord Rayleigh, Sir William Barrett, Sir J. J. Thomson, Sir William Crookes, and Sir Oliver Lodge. In America there were Samuel P. Langley, Simon Newcomb, and E. C. Pickering. These were the leaders of science in their time.
>
> Although he never actively engaged in psychical research himself, Sir J. J. Thomson served as a member of the Governing Council of the Society for Psychical Research for 34 years, lending his name and encouragement to what he believed to be a worthy enterprise.

In the twentieth century, while isolated physicists of eminence (including Einstein) have encouraged psychic research, their approval is often not published. In general, the attitude has changed:

> These men who have given private encouragement to parapsychology are exceptions. Prominent physicists today for the most part maintain a stony silence when ESP or PK arises for comment. Occasionally, one will let himself go and give an honest, forthright opinion. E. U. Condon (1969), writing in the *Bulletin of the Atomic Scientists* said the following: "Flying saucers and astrology are not the only pseudosciences. . . . There used to be spiritualism, there continues to be extrasensory perception, psychokinesis, and a host of others. . . . Where corruption of children's minds is at stake, I do not believe in freedom of the press or freedom of speech. In my view, publishers who publish or teachers who teach any of the pseudosciences as established truth should, on being found guilty, be publicly horsewhipped and forever banned from further activity in those usually honorable professions."

Well, that's something like what the Church told Galileo back in the early seventeenth century. It is also about what the angered Athenian demagogues told Socrates—"corrupting the youth" was the charge.

Mr. McConnell concludes with some wondering:

> Is it that physicists today have less courage, curiosity, and openmindedness? Or is it that they have grown wiser and better able to separate truth from nonsense? I can only answer that I found the evidence for ESP inexorably compelling when I examined it in the 1940's. Since then there have been more than a thousand parapsychological entries in *Psychological Abstracts*, not a few of which represent careful experimental investigations with affirmative findings.
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> Many years ago a professor of physics at this university said to me with regard to psychokinesis [moving physical objects by mental means]: "If such an effect were established, it would be for physics the greatest discovery of this century—or any other." He also made clear that he believed PK and ESP are totally impossible phenomena and that he was not about to read any original research papers suggesting otherwise.
>
> Most physicists are more careful than that. They will say only that they are too busy to study the evidence for phenomena as improbable as these. Do they suspect, like Galileo's colleagues who refused to

look through his telescope, that they might see man in a new perspective?

Conservatism has always been a characteristic of the successful scientist. Only the young in heart can accept revolutionary ideas. Max Planck (1949), in the light of his own experience with quantum theory, said it this way in his *Scientific Autobiography: "A* new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die and a new generation grows up that is familiar with it."

A basis for agreement with Planck on both counts is provided by a valuable article on Gregory Bateson by Rollo May in the Fall 1976 *Journal of Humanistic Psychology:*

He [Bateson] states that each of us creates his or her world in that we look out at the universe through our own presuppositions, our own premises, our own expectations. We sieve what we see through our own special meanings, opening ourselves to some interpretations but blocking out others which make us uncomfortable. The story is told of a tribe on a South Pacific island who, when Captain Cook's ship sailed into their harbor, did not see the vessel because they had no word for such a ship. They probably did see something like "clouds" or "an extraordinarily large bird."

A presumptive world that absolutely shuts out nonphysical energy is not a world which can admit the possibility of psychic phenomena. Here another of Bateson's ideas is pertinent. There are communications, he says, whose *validity depends upon belief.* One cannot, that is, even *hear* a communication if it says something held to be impossible. Dr. May discusses the range of perceptions which legitimately depend upon belief, indicating that human beings are connected by "webs far more intricate than we even begin to imagine." He suggests that we often know when we are being deceived, even though we can't afford to admit it to ourselves. People can know they are being lied to, "even though they may not *know that they know it."* He also says:

My own experience in psychotherapy, like Freud's, demonstrates beyond doubt that the client or patient on some level senses a lie when the therapist tells one. . . . Freud says that he made of this a moral reason for assuming ESP; he resolved always to tell the truth since the patient will see through whatever lies he might tell anyway.

Readers interested in having a copy of this paper may write Dr. May at 98 Sugar Loaf Drive, Tiburon, Calif. 95920.