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THE FUTURE'S CUTTING EDGE

THE disasters which seem now to be overtaking the world are of a sort which politics is incompetent to deal with. Even politics in the best sense of constructive social theory is relatively helpless in the face of such problems as world hunger and malnutrition, the spread of mental disease, the general loss of a sense of human dignity, and the paralyzing fear of another world war. Neither the socialists nor the conservatives have shown any great prophetic insight regarding the kind of problems which will beset the world of tomorrow. The socialists predicted the downfall of capitalism, and the capitalists predicted that socialism would develop into a leviathan bureaucracy, and while we have seen some verification of the truth in both predictions, it is an empty satisfaction to be "right" about matters which may soon become irrelevant.

The fact is that there is no substantial difference between the concepts of value held by the radicals and the conservatives of modern industrial society, for both contend that material well-being is the highest good, or at least the essential foundation of the good life for human beings. It probably should be admitted that there is in one sense a great ethical difference, although this is arguable. The radicals insist upon a mechanical equalitarianism in the distribution of material well-being, while the conservatives maintain that equalitarianism in economics is a defiance of the partiality of Nature. Men are rich and poor, the conservatives say, by reason of *natural* law, and an attempt to alter the organic relationships of a "natural" economic system can only impoverish everybody while doing no one good.

But so far as we have any explanations at all of the symptoms of the disaster that seems to be approaching on the "wave of the future," they are non-political explanations. The famine and near-famine conditions existing in many parts of the world have no solution in political manipulations. Soil fertility and food are the roots of social existence and prior to its form of organization. Soil depletion and food shortages seem to be caused by basic human attitudes toward nature, and by the exhausting wars to which all the political systems of our time contribute impartially. Mental disorders and the pandemic spread of degenerative disease are characteristic of concentrated industrial and urban populations, wherever found—again, a development to which politics has been relatively indifferent. The modern radical movement is as much a product of the factory system as modern capitalism, and both depend upon the present organization of industrial society for their existence. Neither extreme of political opinion contemplates rejection of the assumptions and the technological program of industrialism. The labor movement, for example, is not averse to bigness in industry, but welcomes it. The bigger an industry, the easier it is to organize. Big industry stereotypes human beings by occupational conditioning, and stereotyped men function best as members of mass organizations. *Power* is the fundamental objective of all the political and social formations of industrial society, for the good that men seek is supposed to become easily available after power has been attained. Every politician, whatever his party or program, promises the voters the goods they want in return for the power he wants. Men in business seek profits because they think that with those profits they can buy power. As the requirements of the rise to power become more evident and more exacting, there is a corresponding decline in the human estimate of all other values. Eventually, when men arrive at the view that all good things in life result from the possession of power, even the common traditions of morality give way—or are "suspended"—to be

restored after the necessary power has been obtained. But usually, they are forgotten rather than restored.

Political parties, then, are alike in their valuation of material well-being and in their common objective of power. They are also alike in the cultural resources upon which they draw. Physics, biology and psychology are politically colorless in their technology. The atom bomb, if they have one, will explode for the Russians just as it exploded for the Americans. There is not much difference in modern medicine, wherever it is practiced—not much difference, that is, in basic assumptions and techniques. And propaganda, which is modern psychology at work, is the same East and West. These sciences are all in feudal servitude to the ideal of "objectivity'," which means, in practical terms, that nothing can happen in nature without a mechanical cause. Getting things done, scientifically, means doing things *to* people. It is this theory of matter, life and man, ruling out all spontaneity, which makes the practice of science safe and "regular" and dependable. And when practical politicians turn to the sciences for ways and means to carry out their plans, they welcome these dependable methods.

Because the *means* afforded by our civilization—by our scientists and technologists—are regarded as having no moral content or implications, ethics has become a matter of the sentiments. Both social and personal philosophy must be erected upon the shifting sands of unmeaning natural phenomena. Meaning begins only with man, and responsibility, therefore, begins only with man. This view of man's relationships with nature leads to dwarfed and artificial conceptions of morality and to a compensating egotism which sees in nature only "things"—objects without meaning except to be used and thrown away by man. The psychology is that of a self-justifying usurper who recognizes no other logic except that of usurpation. To ravage and exploit the earth, endlessly, and without thought of the future, now seems "natural" to man.

It took some time for the habit of ethical thinking founded on transcendental conceptions to die away. Kropotkin, for example, in the nineteenth century, was still able to read in animal behavior the text of social ethics. He wrote his *Mutual Aid* to prove that the basis of a cooperative society of human beings already existed among animals and that a proper interpretation of evolution would supply all necessary ethical theory. But in the twentieth century, when the moral neutrality of science was more clearly recognized, another sort of credo became the typical expression. It may be represented by an often quoted passage from Bertrand Russell:

> That Man is the product of causes which had no prevision of the end they were achieving; that his origin, his growth, his hopes and fears, his loves and his beliefs, are but the outcome of accidental collocations of atoms; that no fire, no heroism, no intensity of thought and feeling, can preserve an individual life beyond the grave; that all the labor of the ages, all the devotion, all the inspiration, all the noonday brightness of human genius, are destined to extinction in the vast death of the solar system, and that the whole temple of Man's achievement must inevitably be buried beneath the debris of a universe in ruins—all these things, if not quite beyond dispute, are yet so nearly certain, that no philosophy which rejects them can hope to stand. Only within the scaffolding of these truths, only on the firm foundation of unyielding despair, can the soul's habitation henceforth be safely built.

There may be a despair which is "unyielding" in individuals, but there is certainly no unyielding mass despair of the sort Mr. Russell describes. A population which only suspects that this account of nature may be a true one is a population already deeply vulnerable to the naked politics of power. There is no reverence in it, no intuition of the sources of its fears and growing insecurities. These anticipations are in themselves the mark of a neurotic state of mind—of man alienated from meaning, and reduced to admitting only the undeniable reality of physical sensation, physical

pleasure and pain and the hopes and fears that belong to this level of experience.

Such a population makes no qualitative distinction between lust and love, between courtship and rape. Mental health becomes the absence of self-questioning, and self-control, as the means to heightened consciousness, is seen as only a religious aberration. The martial virtues are lost in a welter of mindless slaughter—the more who are killed, the "braver" the victors.

These are only tendencies, of course, resisted half-consciously by many, and with full resolve by a few, but they are sufficiently characteristic of man in the mass to make possible such generalizations about this historical epoch. They are tendencies which represent the dregs of human attitudes and behavior, but today the dregs seem uppermost among the causes which affect human behavior in the mass. And as politics has to do with affecting the behavior of man in the mass, the politician who wants to be "successful" may find it difficult to conduct himself in ways which do not increase the power of these debasing tendencies. As for opposing them, he is practically helpless. The times call for a Savonarola, but should one arise, he would in all likelihood meet Savonarola's fate.

There is a curious analogy between the degradation of politics to a mere competition for unrationalized power and the transformation of religion from polytheism to monotheism. We commonly suppose that polytheistic religion is born of superstition and ignorance, and yet, from the viewpoint of the morality of power, there is a sense in which polytheism is far superior to monotheism. If there are many gods, many potencies or sources of causation in Nature, then there are laws to learn, processes to be understood, relationships to be defined. Or if, as some of the early Christians believed, and possibly Saint Paul himself, there is a Christos principle—a fragment or ray of the Logos—in every human being, instead of Christ being a single historical character, then a new dignity and potentiality is imparted to man, even as we know him. On this theory, democracy, or the idea of numerous political sovereigns, equal before the law, is much more consistent with polytheism or gnostic Christianity than the Jehovistic religion inherited by the West.

If one being has all the power, be he god or political leader, no philosophy, religious or social, is possible. For philosophy has to do with the disposition and regulation of power according to reason, and how men ought to use the power that is natural to them. Power as an end in itself is the destruction of philosophy, and therefore of both religious and political morality.

The infinite power of God is no more susceptible to reason than the infinite power of a political authority. The "reasonings" of a theology which postulates a God of infinite power are like the "social philosophy" of a Totalitarian State—neither can be questioned without challenging the power from which the reasoning and the philosophy flow. And this, of course, is the unpardonable crime, the sin against the Holy Ghost and the treason against all earthly security. But it is also the eternal revolutionary act which rises in the breast of man—of every man who feels the impulse and recognizes the power within him to think for himself.

To meet the future which is already invading the present, then, we may find it necessary to revolt against the assumptions of all the political persuasions of our time, both Left and Right. It is the concept of Power which is devouring the world we live in, reducing our lives to mere mechanisms in the insane construction of a world security machine. Not only are our lives being twisted into patterns of passive conformity, but the planet itself bears the mutilations which have resulted from the struggle for power. Hills denuded of forests and plains yellow with dying fertility show on every continent where man has been, and gone. Battlefields are all about, pitting and blistering the earth's surface, **as** though

portions of the earth, like the moon, had died away.

It seems inevitable that contemporary political ideas and controversy will soon lose their hold upon the minds of thinking people, and that new forms of the human struggle will emerge to come to grips with the problems that politics has consistently ignored. Politics, of course, has "talked about" these problems, but only in connection with the demand for absolute power. Give us *all* the power, the politicians say, and then we shall be able to establish the conditions under which there can be no famine, no neurotic disorders, no more war. But this is the one demand which human beings must reject, unless they plan to abdicate as human beings. Politics, as we know it, demands the location of power in an external authority, whereas the problems which confront us demand the relocation of power within individuals, and the development of a constructive philosophy of its use.

Letter from **South Africa**

JOHANNESBURG. —The report of the commission appointed by the South African government to inquire into the riots between Africans and Indians which took place in Durban last January has now been published. Since at the time exaggerated rumours ran like wildfire through both the national and international press, it is well to draw attention to the figures of casualties and damage which may be taken as authentic.

The report states that 50 Indians and 87 Africans lost their lives. Over 1,000 of both races were injured; 58 stores and 1285 dwellings were damaged. Although these figures show the riots to have been on a far smaller scale than the first reports suggested, they still show them to have been among the most serious disorders ever experienced in South Africa. The report affirms the Commission's belief that the riots were entirely unpremeditated and goes on to outline the factors which provided the situation that so suddenly and explosively burst into flame.

The Commission endeavors to discredit much of the testimony which it received from organisations and individuals actively working among the Africans—testimony purporting to show that the main contributing cause of the whole situation was the growing sense of despair and frustration felt by the African peoples. At the same time, the Commission rather incongruously admits that a basic factor was "unsatisfactory local conditions." Slum conditions on the fringes of Durban are described as "a disgrace to any community which calls itself civilized," and the report speaks of these areas as "human rabbit-warrens in which something like 2300 natives live under the most appalling conditions." That despair and frustration are the inevitable and formidable result of such conditions seems obvious and to have been curiously overlooked, but the oversight may have been due to a reluctance on the part of the Commission to make any admission which might tend to draw consideration of the riots into the arena of political dispute which surges round the whole vexed question of native policy at the present time.

There are, of course, many who would like to lay the blame for the riots at the door of the Nationalist policy of "apartheid." At this stage, such an explanation would be unreasonable. It is the educated and ambitious African who realizes the utter frustration which this "apartheid" policy means for his people, while the Africans involved in the riots were the mob, mostly barrack "boys" (as even grown African men are commonly termed). These Africans are uneducated for the most part, with only the slightest veneer of civilization, and an easy prey to the violent passions of mob hysteria. What actually happened on January 13 was that a small incident between a native boy and an Indian youth provided the spark which set fire to an acute resentment, and then these relatively primitive Africans ran amok among sections of the Indian community, raping, burning, and killing indiscriminately. The African casualties occurred not so much from Indian retaliation as from police defense measures, which, had they not been stern, would have left the way open for more appalling crimes to have followed. Even in spite of stern police action, incidents have continued ever since, and there have been many moments in the intervening months when only the strictest vigilance has prevented further outbreaks. This situation continues and would seem likely to continue.

Other factors responsible for the tension which resulted so tragically are cited by the Commission. These include the increasing lack of discipline among natives, bad precepts and bad examples (whatever that may mean), the character of the parties concerned, and increasing antipathy between Indians and Africans. The Africans who testified before the Commission gave many reasons for their resentment against Indians. The most serious, and, in the eyes of the Commission,

the best substantiated grievances, were of the seduction of native women by Indian men, and the sharp practices of Indian traders against natives. There was also much complaint about the exploitation of Africans by Indian bus owners, but this was considered to have been grossly exaggerated.

Before the last war, relations between the Indian and African communities were comparatively cordial, but deteriorated badly during the war years. General opinion among white people in Natal attributes this to the gross overcharging of natives by Indian traders for scarce essential commodities, and the evidence of Africans before the Commission bore witness that this was at any rate a major factor. It is, of course, typical and tragic that more of the innocent than the guilty suffered in the ensuing retribution. In fact, many of the Indians involved were themselves miserably poor and probably equally exploited by the traders. It is to the shame of the authorities that effective measures were not taken against such exploitation. Again and again, in the evidence given before the Commission, Africans voiced the opinion that they, as a people, did not feel they would get justice by appeal for redress of their grievances to the legal authorities. To some extent this simply reflects the common difficulty of providing adequate legal defense for the poor, but it also indicates the very great difficulty of a primitive and uneducated race in understanding the social and legal system which belongs to the white races. In fact, it seems just to say that both the evidence presented and the Commission's report showed very clearly the complexity of the problems which beset a multiracial country when the races that have to live together have widely divergent cultural and social traditions and background. The tensions of the present time have come not only from this, but also from the rapid development of a young country to which its inhabitants are not yet adjusted, and to many implications of which its governing class appear to be as yet blind. White, brown, black and coloured alike are victims of circumstances outside their control as well as of the knots tied by the mistakes of past and present. The problems of the conflicting interests of each race are so formidable as to be only possible of solution by a generosity, a tolerance, and a charity of spirit which is supernatural rather than natural.

SOUTH AFRICAN CORRESPONDENT

REVIEW
CASE HISTORY

IN *Dark Legend* by Frederic Wertham, an Italian immigrant boy murders his mother, is adjudged insane, and is committed to an asylum. Except for the rarity of matricide, there is nothing extraordinary, on the surface, about the story (it is a true one, told by Dr. Wertham out of his experiences as senior psychiatrist of New York City's Department of Hospitals), nor is it new, having been published by Duell, Sloan and Pearce eight years ago. We are *not* recommending this book to our readers, although both author and publishers must have regarded it as a "remarkable" study of human nature. We mention it only because it serves to illustrate, as an extreme case, the base metal of which so much of modern thinking and modern literature is made.

Dr. Wertham's reason for selecting the story of Gino, the matricide, for a non-technical book for the general public is easy to understand. He saw in Gino a modern Orestes and a modern Hamlet—not so heroic, perhaps, nor schooled in classic utterance, but undoubtedly one who suffered from the same morbid compulsions. The inevitable question is, Why, when Gino seems to echo even the words of Orestes, is Dr. Wertham's book just another case history, and Aeschylus' *Orestes* a great tragedy? It would be foolish to say that it is because Gino was a semi-literate immigrant boy, while Orestes was of noble breed. More than likely, part of the explanation is that the offense of Orestes comes to us in a work of art, while Gino's hideous crime actually occurred in a flat on New York's lower East Side. But why should matricide in the words of Aeschylus be more "appealing" than the sympathetic probing of a modern psychiatrist?

To attempt to answer this question directly would be like trying to imagine how it would feel to have Hamlet for a next-door neighbor in a middle-class suburban community in the United States: the idea won't work; there are too many incompatibles. We can tolerate and admire Hamlet on the stage because he is compounded of the real and the unreal. What is real is the stress that tortures his soul; the unreal, at least, to the audience, is his cruelty to Ophelia, his sudden slaughter of Polonius, his forged death-sentence of Rosencrantz and Guildenstem, and his never-questioned identification of vengeance with justice. Tragedy, perhaps, instructs us in what a man may do when tested to the core of his being. It is the test which interests us—the writhings; of consciousness upon the rack—and we forgive or overlook deeds that in the common herd, our neighbors, our relatives and friends, would be abhorrent. So, when Gino left his mother lying on the floor with thirty-two stab-wounds in her body, we cannot forget it, even though Dr. Wertham tells us Gino was sick in his mind—which must be so—and even though Orestes before him, almost line for line, in Aeschylus, anticipated the rising pulse of his hatred, the reasoning mixed with emotion, the righteous fury and warped religiosity which found its climax in the crime.

Perhaps there would be a way to tell the story of Gino without infecting the sensibilities of the reader with aversion. Perhaps there is a way to read Dr. Wertham's book without aversion—but this would be a clinical way of reading, reading without entering Gino's life, reading as though it were an article in that chilling organ of professional medicine, the *Journal* of the A.M.A.

Perhaps, too, there is a difference between the time of Aeschylus and our own—a fundamental difference, that is, making matricide a subject which no longer will serve as the matrix of moral profundity. If Aeschylus were alive today, what would he write about? "The story of Orestes," Dr. Wertharn informs us, "had great social and political significance for the ancient Greeks. It marked the transition from one social order to another, from the matriarchal to the patriarchal system." This may be so, but Dr. Wertham, it seems to us, misses entirely the point of what Aeschylus was about. The tragedies of

Aeschylus, like all great works of art, are ennobling in effect. Dr. Wertham's book, incidentally, is not. There are, one may say, two principal reasons for the uplifting effect of tragedy. First, an undisclosed but insistent sense of meaning haunts the drama. Something above and beyond the merely human ordeal, some larger fulfillment, is going on. We may never know what it is, but we feel the presence of this reality. The Furies who pursue Orestes after his crime, the intervention of Athena in his behalf—these are representations of the linking of human affairs with a higher order of life. *Something* is being worked out in Orestes' trials, for even the universe takes notice—the gods participate. It is worth some suffering to involve the gods, who do not go in for trivialities.

When Gino nurses his complexes, grows bitter, finally kills his mother, then, after a time, repents and is purged of his sense of guilt, it is only Gino, a little man—a boy, in fact—who has sinned and suffered, and Dr. Wertham ends on a note of patient waiting for society to realize that men like Gino, once they become "adjusted," no longer menace society—a conclusion which seems unquestionably true. But has tragedy—any tragedy no more to say than this?

In *The Modern Temper*, Joseph Wood Krutch writes on this subject. Speaking of the function of art, it must, he says,

> in some way or other, make the life which it seems to represent satisfactory to those who see its reflection in the magic mirror, and it must gratify or at least reconcile the desires of the beholder, not necessarily, as the naïver exponents of Freudian psychology maintain, by gratifying individual and often eccentric wishes, but at least by satisfying the universally human desire to find in the world some justice, some meaning, or, at the very least, some recognizable order. Hence it is that every real tragedy, however tremendous it may be, is an affirmation of faith in life, a declaration that even if God is not in his Heaven, then at least Man is in his world. . . .
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> Thus for the great ages tragedy is not an expression of despair but the means by which they saved themselves from it. It is a profession of faith, and a sort of religion; a way of looking at life by virtue of which it is robbed of its pain. The sturdy soul of the tragic author seizes upon suffering and uses it only as a means by which joy may be wrung out of existence, but it is not to be forgotten that he is enabled to do so only because of his belief in the greatness of human nature and because, though he has lost the child's faith in life, he has not lost his far more important faith in human nature. A tragic writer does not have to believe in God, but he must believe in man.

Here seems to be the crux of the matter. For a psychiatrist to discourse on "faith in man" would probably sound extremely unprofessional. There is nothing in his vocabulary—unless he borrows from the humanities—to lend meaning to the idea of "faith in man." His is the language of the observer, the conditioner, the manipulator, not the inspirer. He may be exceedingly sympathetic and humane—as is certainly the case with Dr. Wertham—but the mode of thought which tragedy embodies is alien to all the psychiatrist's techniques. That these modern doctors of the mind ransack the classics for illustrations of their theories, even naming their complexes after mythological figures, seems a profane usage, a mixing of themes and theses. It seems to minimize the heritage of the past by borrowing only the superficial from the forms of great literature, and leaving neglected the content, the spirit, which was the very life of creators like Aeschylus and Shakespeare. Gino is not a tragic figure; he is only pitiable; for there is no promise of human greatness in his story, nor even the hint that it might have been there. And this lack, this failure of the spirit, is what makes not only Gino, but the contribution of psychiatry and far too much of modern literature also, pitiable things.

COMMENTARY
SOUTH AFRICAN POLICIES

A RECENT issue of John Collier's *News Letter* of the Institute of Ethnic Affairs supplies a background of facts to go with this week's letter from South Africa. The Union of South Africa contains 472,550 square miles occupied by 7,250,700 "natives," 2,188,200 whites, 844,400 "colored" (presumably half-castes), and 238,400 Indians. Rural whites, totalling 796,000 in 1936, hold 204.500,000 acres of land. White acreage per capita is 256, native, 7.2. Mr. Collier puts the Union's land policy in a few words:

> Take the native's land away from him and he must work for whites or die. But leave him a little bit of land; for then he can be denied a living wage, since he has land to support him.

The South African labor policy has developed around two central planks: (1) Black labor must be unskilled; it must be segregated, virtually imprisoned and forced labor, and it must be paid the absolute minimum. (2) White labor, regardless of competence or skill, must receive much higher wages than black. Employers must prefer white to black labor—a requirement written into all contracts for work for public agencies. This wage differential pervades all South Africa's economic pursuits. The average black mine worker receives about 11.3 pence a day. Average pay to white miners is eleven times this amount. Hundreds of thousands of natives are held in peonage by white farmers. According to S. H. Frankel's *Capital Investment in Africa:*

> The farm native is at the very bottom of the scale . . . tied to the (white) farmers by a system of labour tenancy by means of which whole families are immobilized in and out of season. The cash wages of the native farm laborer are in many parts of the country almost nominal.

Meanwhile, the land itself is being destroyed—land which, in the case of white-held areas, was seized from the natives by the State, without compensation. Mr. Collier writes:

> The native reserves, densely overpopulated, move to utter destruction through erosion. The under-populated white-owned lands, 1,280 acres per family, move through bad land use to destruction, too. Whole rivers have disappeared, and new rivers fed by flash floods pour intermittently through gullied lands.

In South Africa, the premise of the controlling pressure groups is: The White man rises through pushing the black man down. But when the gold and diamond mines cease to produce, the whites may fall down after the blacks, to live in the shambles of their spoliation.

CHILDREN
. . . and Ourselves

"WHY is it that children often seem more adult and more generous and intelligent in their relations with comparative strangers or friends than within the family?"

All human beings, even the littlest ones, respond to the idea of a "new beginning." When a "new" person is encountered we feel we have an opportunity to start a completely fresh life, psychologically. Children, too, manifest the same sort of reaction as does the adult, who frequently feels that new pastures may be greener—and easier. The reaction described by the questioner, in other words, may be either very good or something less than good, depending upon the concealed prompting. But in either case the reaction is identical with adult behavior.

Adults, of course, have had a considerable amount of time in which to complicate their lives with entanglements too difficult for their tastes. They, more than very young people, are apt to have a questionable sort of "prompting" for seeking new relationships as a kind of escape. This may be an unspoken "giving up" with one's present acquaintances, who have, we think, not adequately appreciated us. With the child, the same escape-reaction may often manifest. But then, too, on the other side of the ledger, both the child and the adult may be trying to live up to some sort of idea of the kind of persons they would like to be. He can project this idea of himself more easily with those who have not seen him fall from the Ideal repeatedly—and who have not, so far as he knows, fallen repeatedly from the Ideal themselves. Whenever we have debased ourselves, however slightly, in a relationship with another person, we find it hard to transcend the almost visual picture of our emotional character which thereafter haunts both the friend and ourselves.

We know there is no real escape for the adult in new relationships, and this must be true of the child, too, but there are extenuating circumstances. The adult seldom has legitimate excuses for his failure with the "cold" friendship or loves, while the child has. He possesses much less skill with which to meet times of emotional stress and strain, and he can pass on to the new opportunities without any deeply ingrained habits pursuing him.

There is another important aspect to this question, inclining us to reiterate several things on the matter of possessiveness. The child who meets an adult "stranger" does not feel tied by the strictures, unfortunately common in most families, as to what the child should and should not do. The child is not metaphorically walking on egg shells, with the fear that the adult may constantly be hounding him to be something which he is not; he can strike out boldly in whatever way he desires. In building a relationship with another person, he will simply try to be what he really wants to be—and there is exhilaration in this sort of endeavor. He will be trying neither to conform to nor rebel against another's pattern.

Psychiatrists have discovered that children are often made tense and uncomfortable—if only subconsciously—by even such things as constant criticism of their physical appearance. If a certain expression on a child's face or a certain amount of grime brings forth violent reactions from the parent—usually because the parent doesn't wish to see *his* child looking that way—the child will feel the premonitory symptoms of two complexes at once: inferiority, and resentment against the person who made him feel inferior. The contact with the "stranger" is free of all this. The child will naturally hope that the new person will never see him in the same uncomplimentary light as does the constantly disapproving parent, and he will try to be a person he thinks the adult may recognize as worthy—a person characterized by positive and interesting traits rather than drawbacks.

It takes a very exceptional parent, moreover, to be a hero in his child's eyes. And the child needs heroes. All of us need foci for our

aspirations, the child especially. Because the child needs heroes, he really knows quite a bit about them. He is apt to be sure in his own mind, for instance, that heroes don't nag. Heroes always pioneer with the best material at their disposal, and do not sit around bemoaning their lack of equipment or friends, for heroes are not trying to cover up their own limitations. Children need as many visions of greatness and wisdom and strength and courage and tolerant understanding as they can get, to assist them in focusing an idea of possible "greatness" within themselves. Thus the child looks at every newcomer as a potential hero, and perhaps looks at himself as a hero while he is in the company of the newcomer.

Such speculations, certainly, provide recommendation for encouraging friendships between the child and adults outside the immediate family. Then, there is another recommendation, involving the very practical question of natural aptitudes. In earlier communities, it was easy for a child, fascinated by a certain trade, to associate with the man who plied that trade. But it is much more difficult to associate yourself intimately with a factory than with a blacksmith, and much less appealing. The child no longer sees men at work, except for the contractors who come to dig up the street for a new pipe line, or workmen who drive up in trucks to repair something or other, etc. This urban condition is a serious deprivation, for the child is not able to come in direct touch with the natural processes of economy, and this, in turn, means that his maturity is considerably delayed. The closest modern equivalent to a community we have is that of "the neighbors"—all of whom, incidentally, are apt to have other occupations as well as different personalities. And most neighbors want to be constructively friendly with children; they enjoy adding to the small storehouse of knowledge in a child's mind. If the child be encouraged to regard his whole neighborhood as part of his "family," he will have a much greater opportunity to discover, in this larger circle of acquaintances, his own full complement of interests and talents.

FRONTIERS

"Life's" Atom

LIFE'S "16-page Primer for Laymen" on the Atom *(Life*, May 16) would be a splendid piece of visual education if, in addition to the informative illustrations, diagrams and text, the editors had at least defined, if not discussed, the basic philosophical questions which any serious presentation of atomic theory ought to raise. Instead, *Life* provides only the "technology" of the atom—the value-void "facts" of atomic research. The trouble with presenting only or mostly just "facts" is that these are something to remember, or to forget, but not to think about, except in the way that technologists think about their facts. Readers, therefore, can gain from the *Life* story on the Atom only a superficial and over-simplified view of what technologists think about the subject, when they ought to be led to ask about the questions which the technologists ignore as unimportant because non-technical.

Life does, however, "set up" one of the philosophical problems involved in the idea of the atom, although without calling attention to it directly. Noting that atomic theory is based upon "indirect evidence," the Primer explains why physicists have believed that the atom is an *indivisible* particle of matter. Basically, the idea of indivisibility is founded on the fact that the elements always combine in fixed proportions—for example, two "atoms" or units of hydrogen combine with one of oxygen to make water. The "logic" of indivisibility is stated as follows:

> Elements must be composed either of a uniform, infinitely divisible substance or of ultimate particles which cannot themselves be divided. If elements are infinitely divisible, then any two of them should mix together in any proportion to produce endless variations of a given compound just as red and white paint mix to produce endless variations of pink. But compounds are not variable in their make-up. Therefore the elements cannot be infinitely divisible but must be made of particles, or atoms.

On the other hand, the atom *is* divisible, as shown by the rather extensive catalog of sub-atomic particles—protons, electrons, neutrons, neutrinos, mesons, etc. Question: Should atoms be called "atoms," or should they be called something else? Originally, "atom" meant in physics the ultimate particle of matter—the unit which cannot be subdivided. But the atom can be subdivided. Why, then, call it an atom? Second question: Should the "things" into which the atom is divided be called "matter" at all ?

According to Dr. Einstein,

> . . . matter represents stores of energy and that energy represents matter. . . . Matter is where the concentration of energy is great, field is where the concentration of energy is small. But if this is the case, then the difference between matter and field is a quantitative rather than a qualitative one. There is no sense in regarding matter and field as two qualities quite different from each other. We cannot imagine a definite surface separating distinctly field and matter. *(The Evolution of Pyisics,* 1938, p. 257.)

Taking Dr. Einstein's word for it, this sounds as though we ought to think of the particles of matter into which the atom is divided as forms of "energy," but if this is the case, then *Life's* pretty pictures of sub-atomic phenomena are somewhat misleading, for energy itself is defined by a conventional concept of modern physics as "capacity for performing work," and is therefore a scientific abstraction, not a "thing" which you can photograph or make a picture of to put into a magazine. You can make a picture of the *symbol* of a capacity, but not of the capacity itself.

Life editors are careful, of course, to protect themselves from the charge of misrepresentation. They say that the atom is "too infinitesimally small ever to be seen or measured," and on the pages portraying "photo-models" of the "inner structure" of helium, hydrogen, lithium and beryllium—which are "the simplest atoms"—it is explained that, currently, "the atom is visualized as a nucleus of protons and neutrons encircled by whirling electrons." But these qualifications hardly weaken the sense of physical "reality" which readers will

derive *from Life's* "photo-models" of planetary structures (subatomic)—structures which originated in scientific imagination and may exist nowhere else, despite their conformity to certain formulas of mathematics. The planetary atom may be no closer to reality than Ptolemy's geocentric system of astronomy, which also, be it noted, satisfied mathematical requirements—in this case the formulas based upon physical observation of the motions of celestial bodies. As a matter of fact, the planetary theory of atomic structure is an old one, developed many years ago by Niels Bohr, and while it was doubtless of value for some purposes, it is now known to be inconsistent with more recent contributions of atomic theory, such as the wave-mechanics of Schr6dinger.

In any event, the *Life* treatment of the atom in no way offers a psychological release from the materialism of concrete representation. Picture-analysis of the subject imparts the same "thing-ness" to the atom as it possessed in the nineteenth century as the "billiard-ball" atom—supposedly a tiny particle of ultimate hardness and "materiality." The fact is that the atom has dissolved into electricity and a maze of mathematical equations.

Quite possibly, what we call atoms is really a state or condition of matter, energy, or even "life," in which the zone of another sort of reality than physical reality is approached. Quite possibly, too, we should reserve the term "atom" for application to any *limit* of analysis according to given methods of approach, without suggesting or implying that that limit is final or absolute for other methods of approach. This view would certainly jibe with the general experience of scientific inquiry, for time after time mechanical methods have given way to chemical methods, and both have been replaced by the study of electricity, while mathematics reigns supreme over all these approaches. Why not pursue reality still further, and suppose that the study of energy may be replaced by some sort of cosmic psychology, and mathematics bow to the integrating power of philosophy?

It seems certain that technology—even the most refined technology—will never answer any of the basic questions about either the atom or the universe. Dr. Einstein has declared the purpose of physics to be the "direct representation of physical reality in time and space," but what of the possibility that "physical reality," in any ultimate sense, is meaningless unless it is represented in relation to *meta*physical reality? How much meaning would there be in the "direct representation" of a man's feet, in time and space, if no legs, trunk, arms and head were shown? We might have *Life's* best possible photo-models of the best possible feet in the world, with four-color process engravings showing every last detail, and still remain pathetically ignorant of what feet are and what they are for. We might even learn that feet can kick, just as we have learned that atoms, or atomic nuclei, can explode, but this would only multiply our ignorance by a factor of distortion.

While discoveries in atomic physics during the past fifty or sixty years have vastly increased our technical knowledge of what we call "matter," it is difficult to see how we have approached more closely to the actual nature of things. Our technical knowledge, at any rate, has not taught us how to get along any better with natural forces, nor with each other. We have learned to *use* natural forces, but this is not necessarily the same as understanding them, The misery which our misuse of natural forces has wrought may instead be taken as evidence that technical knowledge has made us understand nature less rather than more. We still approach nature like mechanics—all we want to do is to get some wheels turning, the faster the better.

Of course, there are thoughtful scientists who have profited by technical discovery in the sense that they recognize the possibility that nature may be mechanical only superficially—in the "dead" part of nature, Juenger would say. The trouble with the *Life* article is that it contained no hint of

this possibility, but continues to reinforce the mechanical idea of the atom and of nature, thus giving its readers a false sense of mechanical familiarity. The same sort of feeling pervades most attempts to "explain" the Einstein Theory at a level of popular understanding. The general idea is that an explanation must be "mechanical" in order to explain.

Some years ago, Prof. J. E. Turner of the University of Liverpool pointed out that considerable mystical glamour has been associated with the concept of space-time, and that this is hardly justified by the strict scientific account of the concept. There is no reason to believe, he said, that "since space-time is both invisible and mysterious, it must therefore be 'spiritual'." This seems a healthy attitude to take toward modern physics. Wave mechanics and quantum mechanics are still mechanics, and will, perhaps, remain in theoretical contradiction until resolved by some supra-mechanical theory involving the *living* aspect of natural phenomena. Something of this sort is hinted by Prof. Turner, who remarks:

> The ultimate relations between the spiritual and the mechanical. . . . constitute a far profounder problem. Perhaps "organism" should be reserved to indicate teleological, adaptive and reproductive factors; . . . It may be, in fact, that Life and mind, or perhaps the spiritual as such, can manifest or express themselves only by means of those adequately intricate and delicate mechanisms, in the modern and non-Newtonian sense of this term, with which nature is indubitably and inexhaustibly endowed. *(Philosophy of Science*, January, 1940.)