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THE METAPHORS OF CERTAINTY

IN *Science* for May 12 of last year, Joseph Weizenbaum discusses the "Impact of the Computer on Society." He is not so much concerned with the potentialities of the computers themselves as with the expectations of human beings as to what computers can accomplish. These expectations are already vastly exaggerated, he believes, being fed by the public relations experts of the computer industry as well as by various enthusiasts who now look forward to some sort of Computer Millennium. He quotes H. A. Simon, identified as "one of the most senior of American computer scientists," who predicts "an exceedingly important role for computer simulation as a tool for achieving a deeper understanding of human behavior." Simon founds this estimate on a clearly stated assumption:

> A man, viewed as a behaving system, is quite simple. The apparent complexity of his behavior over time is largely a reflection of the complexity of the environment in which he finds himself.
>
> . . . I believe that this hypothesis holds even for the whole man.

Weizenbaum points out that it is no new discovery that man lives in a complex environment, nor that there are parallels between computer components and aspects of man's nervous system; then asks:

> But does this collection of obvious and simple facts lead to the conclusion that man is as simple as are computers? When Simon leaps to that conclusion and then formulates the issue as he has done here, that is, when he suggests that the behavior of *the whole man* may be understood in terms of the behavior of computers as governed by simple general laws, then the very possibility of understanding man as an autonomous being, as an individual with deeply internalized values, that very possibility is excluded. How does one insult a machine?
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> The question "Is the brain merely a meat machine?", which Simon puts in a so much more sophisticated form, is typical of the kind of question formulated by, indeed formulatable only by, a technological mentality. . . . A human question can be asked instead. Indeed, we might begin by asking what has already become of "the whole man" when he can conceive of computers organized in his own image.

In the course of his discussion Mr. Weizenbaum makes it plain that "a computer is nothing without a program," and to challenge its conclusions is to challenge the theory which its program embodies or is based upon. But there are programs which are by no means purely "theoretical," and when results cannot be checked against experience with any certainty of determining the validity of the program, then miscalculations may be made the basis of decisive action. He quotes Norbert Wiener as saying, "This means that though machines are theoretically subject to human criticism, such criticism may be ineffective until long after it is relevant." Which is a way of pointing out the possibility that not until irreparable damage has been done will we know that mistakes have been made. Speaking of programs which have large elements of non-theoretical assumptions for foundation, Mr. Weizenbaum asks:

> . . . what about the many programs on which management, most particularly the government and the military, rely, programs which can in no sense be said to rest on explicable theories but are instead enormous patchworks of programming techniques strung together to make them work?
>
> In our eagerness to exploit advance in technique we quickly incorporate the lessons learned from machine manipulation of knowledge in theory-based systems into such patchworks. They then "work" better. I have in mind systems like target selection systems used in Vietnam and war games used in the Pentagon, and so on. These often gigantic systems are put together by teams of programmers, often working over a time span of many years. But by the time the system comes into use, most of the original programmers have left or turned their attention to

> other pursuits. It is precisely when gigantic systems begin to be used that their inner workings can no longer be understood by any single individual or by a small team of individuals. . . .
>
> An awkward operating system is inconvenient. That is not too bad. But the growing reliance on supersystems that were perhaps designed to help people makes analyses and decisions, but which have since surpassed the understanding of their users while at the same time becoming indispensable to them is another matter. . . . Modern technological rationalizations of war, diplomacy, politics, and commerce such as computer games have an even more insidious effect on the making of policy. Not only have policy makers abdicated their decision-making responsibility to a technology they don't understand, all the while maintaining the illusion that they, the policy makers, are formulating policy questions and answering them, but responsibility has altogether evaporated. No human is any longer responsible for "what the machine says." Thus there can be neither right nor wrong, no question of justice, no theory with which one can agree or disagree, and finally no basis on which one can challenge "what the machine says."

This sounds like a pretty bad state of affairs. One would like to think that Mr. Weizenbaum's proposal at the end of his article is the right solution. He asks for a deliberate and indeed publicized humility on the part of computer scientists, stressing what they don't know, instead of allowing promoters to make ridiculous claims in behalf of computer simulation, such as that they will lead to "general solutions of all of mankind's problems." Yet his proposal has in effect already been spontaneously adopted by practically all the really great scientists, who continually stress how much more there is to know, and how little, really, scientific knowledge tells us about the affairs of mankind. The biographies of the most distinguished discoverers reveal this attitude. However, the awe and modesty shown by such men usually remains hidden from the general public. The public, unfortunately, as "public," has little taste for humility, regardless of how people may feel and behave in their individual lives.

It is a lamentable fact that very nearly every scientific innovator or any sort of pioneer who is overtaken by fame learns at first hand the truth pointed out by Harold Rosenberg in *The Tradition of the News:*

> The popularizers find their natural allies in the rank and file of each profession, to whom the latest discoveries are as alien and disturbing as to the public itself. The union of salesmen, publicizers and distributors with the applied technicians is enough to give them control over any new idea or work. In no case does the founder of a method determine the use to which it shall be put by the profession nor what the public shall be told it means—as against the practitioner chiefs who head the university departments and professional associations, the influence of a Freud or an Einstein has been negligible, and the same is the case, of course, with the innovator in the arts. He is doomed to isolation by the very processes through which his work reaches society. The larger the part played by his creation in the profession the less need there is to understand it, and the greater grows the distance exerted by his work. The more widely he is known to the public the greater the misinterpretation and fantasy built upon his name and the greater the distance between himself and his social existence. The famous "alienation of the artist" is the result not of the absence of interest of society in the artist's work but of the potential interest of *all* of society in it. A work not made for but "sold" to the totality of the public would be a work totally taken away from its creator and totally falsified.

One thinks, here, of Einstein's sad letter to Max Ascoli of the *Reporter*, when asked about the situation of scientists in America. He wrote this reply shortly before he died. In it he said that if he were a young man again he would choose to be a plumber or a peddler instead of a scientist, in the hope of finding "that modest degree of independence still available under the present circumstances." Then there was what happened to Robert Oppenheimer when he dared to exert some influence on the program of the Atomic Energy Commission, and the pain which haunted his later years. And, finally, there is the likelihood that the innovator will nonetheless be held responsible for all the consequences of what is done with his discovery or invention, whether or not he is allowed control over its development and application. Always the question is asked: "Do individual investigators ever break off their

research when they see that it is headed for a dangerous future?" But when they warn against misuse and excesses in the applications of scientific discovery, they are treated with the sort of condescension which characterized the public response to the agonized warnings of the atomic physicists who knew better than anyone else what the bombing of Hiroshima and Nagasaki really meant. Daniel Lang has described this reaction:

> It was nice that our scientists had moral afterthoughts, but they had already done their thing. They had won a war and, as an extra dividend, thrown in an apparent monopoly of an unanswerable weapon. The more they trumpeted their note of belated idealism, the more it reminded the public of their wartime exploits. The failure of the scientists' campaign to catch fire was an important event. It lent an ordinary quality to the new nuclear age. Evidently, most people didn't see it in a momentous light. Unenlarged by its advent, our disposition was to settle down to our post-war lives.

What becomes obvious is that people will not so easily give up their cherished metaphors of certainty. And the cautious, cost-benefit approach to each decision, while it may do for painstaking Aristotelian minds, has never made much headway in the areas of mass decision. Quite conceivably, a scientific tool that skillful popularizers are able to turn into a synonym of truth and a guarantor of progress will in the long run be more dangerous to mankind than the secrets of nuclear fission, since there is hardly any risk that politicians will refuse to take so long as it promises support for the existing power-structure.

But all this is not in contention against the solution proposed by Mr. Weizenbaum. He said:

> The mature scientist stands in awe before the depth of his subject matter. His very humility is the wellspring of his strength. I regard the instilling of just this kind of humility, chiefly by the example set by teachers, to be one of the most important missions of every university department of computer science.

Spreading this idea around may not be enough, but it would be a great beginning. While the example of a few good men always needs the understanding and emulation of the "rank and file," without the initial example nothing happens at all.

There is no promise of a solution in establishing watchdogs to suppress ideas which show a tendency to become "metaphors of truth." Such metaphors are vital necessities of human thought. Getting better metaphors will also be the result of the practice of those who set a wise example, and who are joined by others. Any other procedure would be thought-control.

The power of these metaphors is undeniable. Mr. Weizenbaum names some of them:

> The metaphors given us by religion, the poets, and by thinkers like Darwin, Newton, Freud, and Einstein have rather quickly penetrated to the language of ordinary people. These metaphors have thus been instrumental in shaping our entire civilization's imaginative reconstruction of our world. The computing metaphor is as yet available to only an extremely small set of people. Its acquisition and internalization, hopefully as only one of many ways to see the world, seems to require experience in program composition, a kind of computing literacy.

Naturally, Mr. Weizenbaum worries about the emergence of a computer elite, as well he may. William Irwin Thompson spoke similarly of the mood behind the warnings that come from the Club of Rome:

> They finesse the whole power situation by not even trying to go for power, but they say: "We're going to show you in our computers that disaster is ahead of us. However, we happen to be just sitting here cornering the market on disasters, and so we're ready when you want to buy disaster control. We'll solve the planet for you."
>
> . . . everything in the new technocracy is antidemocratic. If you've got computers, you don't have to share information with the bureaucracy; you just give the elite instant information. All the information coming in from different sides—economic, political, religious, social—has one common thing and that is that it is antidemocratic.

Especially demanding attention is the fact that all these metaphors since the beginning of the scientific revolution—since Copernicus and Galileo—have to do with sources of certainty

external to man. And since the advent of the new physics and the outmoding of the Newtonian world machine, the scientific metaphors have become incomprehensible. This was recognized long before the threat of computer claims. It was a scientist—not a humanist critic—who said in the *Atlantic* for July, 1937:

> The enigmas of modern physics are in no measure explained; they are simply dispelled. The reader is not enlightened; he is drugged. . . .
>
> "But what," he may ask, "is this electron which you say is both a particle and a wave?" "Ah, you needn't trouble about that," is the reply; "we don't know ourselves: the electron is something unknown doing we don't know what." "But what, then, have you discovered? Why do you speak so contemptuously of the old science, which we understand in some measure, and say it is superseded by a great new revelation?" "Because we have found that, at bottom, everything is mathematics." "What, then, is mathematics?" "Why, my dear fellow, mathematics is the one sole characteristic of the Creator; would you presume to understand that? If you knew mathematics you would know everything; a mathematical formula, and nothing else, expresses the ultimate reality. You yourself are simply a mathematical formula—a mathematical thought in the mind of a perfect Mathematician. Is not that sufficient justification for contempt of a mere system of screws and flywheels which the last century talked about?" "Well, yes, I suppose; but I don't see how you have found out that everything is mathematics." "Why, by mathematics, of course; how else, since mathematics is everything? The system of physics is a closed system."

In this at once light-hearted yet ominous summary of scientific confidence in the mathematical epistemology we have a foretaste of the elitism that Mr. Weizenbaum fears will soon develop in computer science, with the added hazard that the "perfect Mathematician" may now be ensconced in the computer instead of being hidden in some neo-Pythagorean empyrean.

The prospect is indeed threatening, and, as William Irwin Thompson says, blatantly anti-democratic, but such changes in the idea of where certainty is to be found do not take place in a social vacuum. The more the going conception of knowledge shuts people out from access to its secrets, the more uncanonical sources spring up as the foundation of popular religion and even a sort of hybrid "science" which claims, whether truly or falsely, to derive from ancient sources now neglected by modern man. Thompson's book, *At the Edge of History*, gives numerous instances of the sort of beliefs which spread like wildfire around the country, when the knowledge of scientists and learned men is felt by the people to have no application to their lives.

When scholars ignore the authentic hungers of human beings, those hungers conspire against the authority of scholarship, and sooner or later the authority disintegrates, as much from its own brittle sterility as from attacks of the anti-intellectual mob. And, unfortunately, hunger is not the best basis for the organization of the quest for certainty. While passion of a sort may be at the root of all searching, the structuring of the search needs dispassion, too, and the powers of intellectual discrimination.

Modern man is the heir of many things, but the most difficult to cope with of his inheritances is the ambiguity of European history, with its fierce oscillations between the extremes of belief and disbelief, its all-or-nothing modes of thought. Can there be a scientist who does not sneer at "mysticism," a religious thinker who admires the rigors of scientific investigation, a philosopher who declares that the end of thought is an act?

We have had enough of metaphors of certainty which neglect vast portions of either the world within or the world without. There are no reliable "closed systems" endowed with convenient shutters to exclude unmanageable questions or unassimilable facts. If we cannot explain the universe except by insisting that only a portion of it is all we need to understand, then we had better rest content with our ignorance instead of truncating our minds, for that way lies a worse darkness than an ignorance honestly confessed.

REVIEW
ENCOUNTER WITH GREATNESS

WHAT comes through best of all in the new book, *Albert Einstein—Creator and Rebel* (Viking Press, 1972, $8.95), by Banesh Hoffman, is the reality of Einstein's intuitive genius. Hoffman is equipped to recognize and describe this, since he is himself a theoretical physicist who collaborated with Einstein at the Institute for Advanced Studies at Princeton; and he also has an impressive talent for explanation of difficult matters. This is not to say that the "average" reader will be likely to comprehend even the simplified physics in this book, but that he has a fair chance of realizing that such things can be and are understood.

Until Mr. Hoffman's volume came along, our principal reading about Einstein has been the book published in 1944 (*Einstein—An Intimate Study of a Great Man*) by his son-in-law, Dimitri Marianoff. This is a perceptive and delighting portrait of Einstein as a human being, by one who lived in the house with him and knew him well. Mr. Hoffman's book does not displace Marianoff's work, but adds the scientific dimension to the portrait in a way that can be appreciated, if not wholly understood. And there is much of anecdote and stories of Einstein's humor in the new book, too.

The importance of reading such books cannot be exaggerated. Years ago Arthur Morgan gave as reason for the study of history the fact that most peoples' lives are surrounded by mediocrity, so that only through history can there be an encounter with greatness. He added that if a person has no encounters with human greatness, how will he know that it is possible, or has existed in the world? Albert Einstein's life has a similar importance to us all.

What does one remember after reading this book? The answer will of course vary with readers, but one thing everyone will have noticed is Einstein's extraordinary balance. Neither the world's neglect (in his early life) nor its adulation could disturb him from the exercise of wise and considered judgment. He knew the value of his work, but he had the modesty and the dignity of a man who understood what full knowledge would be, and how little we have of it as yet. Einstein was the greatest physicist since Newton, perhaps of all time, yet in 1945, thanking Herman Broch for a copy of his book on Vergil, he wrote:

> " I am fascinated by your *Vergil*—and am steadfastly resisting him. The book shows me clearly what I fled from when I sold myself body and soul to Science—the flight from the I and WE to the IT."

This recalls something which turned up in a *New Yorker* Profile of Einstein by Niccolo Tucci (Nov. 22, 1947), to the effect that every evening Einstein spent an hour reading aloud in Sophocles, Thucydides, and Aeschylus. Tucci remarked, "So you, too, Herr Professor, have gone back to the Greeks." Einstein replied:

> "But I have never gone away from them. How can an educated person stay away from the Greeks? I have always been far more interested in them than in science."

There may have been some exaggeration here, but it illustrates the spirit of the man.

Einstein had the essential qualities of an autodidact. When one of his biographers asked him, rather tastelessly, if he inherited his gift for science from his father and his musical ability from his mother, he replied: "I have no special gift—I am only passionately curious. Thus it is not a question of heredity." Looking back on his own life, he offered an explanation of why he chose physics as his field:

> The fact that I neglected mathematics to a certain extent had its causes not merely in my stronger interest in science than in mathematics but also in the following strange experience. I saw that mathematics was split up into numerous specialties, each of which could absorb the short lifetime granted to us. Consequently I saw myself in the position of Buridan's ass, which was unable to decide upon any specific bundle of hay. This was obviously due to the fact that my intuition was not strong enough in the field of mathematics. . . . In [physics], however, I

> soon learned to scent out that which was able to lead to fundamentals and to turn aside from everything else from the multitude of things that clutter up the mind and divert it from the essential.

His sense of wonder—and his insatiable curiosity about the physical world emerged early. When he was four or five, sick in bed with some childhood illness, his father gave him a magnetic compass to play with. It fascinated him. More than sixty years later he spoke of that compass as giving a direction to his life. What made the needle point to the north?

At twelve he encountered Euclid, calling it the "holy geometry book" which he read with almost religious awe. At thirteen a perceptive teacher in Munich, where he grew up, gave him Kant, and later remarked that "Kant's works, incomprehensible to ordinary mortals, seemed clear to him." Yet in the strict, authoritarian Munich school he was a "trouble-maker." He asked questions that the teachers found it difficult to answer, and they resented his presence. Many years later he was to remark: "To punish me for my contempt for authority, Fate made me an authority myself."

Hoffman has several fine passages on Einstein's religious feeling or ideas. Early in the book he says:

> Perhaps in a brief biography it seems almost irrelevant to dwell on the religious evolution of one who was to become famous as a scientist. But Einstein's scientific motivation was basically religious, although not in the formal, ritualistic sense. We have already seen the magnetic compass needle pointing the way for the enchanted child. The man never lost this early childlike sense of awe and wonder. "The most incomprehensible thing about the world," he said, "is that it is comprehensible." When judging a scientific theory, his own or another's he asked himself whether he would have made the universe in that way had he been God. This criterion may at first seem closer to mysticism than to what is usually thought of as science, yet it reveals Einstein's faith in an ultimate simplicity and beauty in the universe. Only a man with a profound religious and artistic conviction that beauty was there, waiting to be discovered, could have constructed theories whose most striking attribute, quite overtopping their spectacular successes, was their beauty.

In 1921, when he had come to America to help Chaim Weizmann raise money for the Zionist movement, he attended a reception at Princeton in his honor, and on that occasion he was asked to comment on what Hoffman terms "some dubious experiments." He said in effect, "God is subtle, but he is not malicious." Later, when questioned, he explained that "he meant that Nature conceals her secrets by her sublimity and not by trickery." On the question of Einstein's view of "God," Hoffman says:

> In a letter in 1929 he spoke of himself as a "disciple" of Spinoza, who looked upon all nature as God. Shortly before, when asked via transatlantic cable if he believed in God, he cabled in reply: "I believe in Spinoza's God who reveals himself in the orderly harmony of what exists, not in a God who concerns himself with the fates and actions of human beings." His attitude toward Spinoza was one of profound reverence. In 1932 he declined an invitation to write a brief study of the philosopher, saying that nobody could do it since it required not only expertise but also "exceptional purity, imagination—and modesty."

In 1947, after being asked to sum up his views on belief in a Supreme Being, he wrote in English:

> It seems to me that the idea of a personal God is an anthropological concept which I cannot take seriously. I feel also not able to imagine some will or goal outside the human sphere. My views are near those of Spinoza: admiration for the beauty of and belief in the logical simplicity of the order and harmony which we can grasp humbly and only imperfectly. I believe that we have to content ourselves with our imperfect knowledge and understanding and treat values and obligations as a purely human problem—the most important of all human problems.

There is one further discussion by Hoffman of Einstein on God, in connection with the great theorist's resistance to the statistical laws of the "probabilistic universe" which resulted from quantum mechanics. Putting his feeling briefly, Einstein said, "God does not play dice." But this

was no anthropomorphism for Einstein, who explained in a letter to a freethinker in 1953 that by this God who did not play dice he meant "not Jahwe or Jupiter but Spinoza's immanent God."

This would have been a good place for Mr. Hoffman to add a reference to a paper prepared by Einstein for the Conference on Science, Religion and Philosophy held in New York in September, 1940, in which he said (according to a *New York Times* report):

> . . . the main source of the present-day conflicts between the spheres of religion and science lies in this concept of a personal God. . . . To be sure, the doctrine of a personal God interfering with natural events could never be refuted in the real sense by science, for this doctrine can always take refuge in those domains in which scientific knowledge has not yet been able to set foot. But I am persuaded that such behavior on the part of the representatives of religion would not only be unworthy but also fatal.
>
> For a doctrine which is able to maintain itself, not in the clear light, but only in the dark, will of necessity lose its effect on mankind with incredible harm to human progress.
>
> In their struggle for the ethical good, teachers of religion must have the stature to give up the doctrine of a personal God—that is, give up that source of fear and hope which in the past placed such vast power in the hands of priests. In their labors they will have to avail themselves of those forces which are capable of cultivating the Good, the True and the Beautiful in Humanity itself. That is, to be sure, a more difficult but an incomparably more worthy task.

We have said nothing about Einstein's scientific achievements, but such things are far better described by Mr. Hoffman and others who know of their own knowledge the majesty of what Einstein did. Hoffman is continually amazed by the penetration of Einstein's intellect, and the word "intuition" seems to appear on almost every page. A good example of this comes when, speaking of the general theory of relativity which Einstein developed during World War I, Hoffman says:

> What of Einstein's gravitational field equations that govern the space-time curvature? There are ten of them, and they are enormously complicated. If written out in full instead of in the compact tensor notation, they would fill a huge book with intricate symbols. And there is something about them that is intensely beautiful and almost miraculous.
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> It may seem ridiculous to talk about beauty and near miracle after implying that the equations are ugly and cumbersome. Let us therefore ask a question. How did Einstein manage to find the equations? Could he had guessed the various terms—hundreds of thousands of them, or in one form millions, and all of them highly unpleasant? Impossible. Then how did he find them? That is where the beauty and near miracle come in. For the tensor calculus contained stringent rules that, for the most part, had the effect of a request for simplicity. . . We begin—but only begin—to see here the true stature of Einstein's intuition. What were the seeds that gave rise to this wonderfully unique structure? Such things as Newton's theory and the special theory of relativity of course, and Minkowsky's idea of a four-dimensional world, and Mach's powerful criticisms of Newton's theory. Also the mathematical framework already prepared. . . . but after that what? The principle of equivalence, the principle of general covariance, and—why, essentially nothing else. By what magical clairvoyance did Einstein choose just these two principles to be his guide long before he knew where they would lead him? That they should have led him to unique equations of so complex yet simple a sort is in itself astounding.

One needs to know all one can about such a man.

COMMENTARY
SALUTE TO THE GUARDIAN

SOME years ago, when the ideal of a "free and responsible" press was being widely discussed, it became evident that a major problem of editors lay in the fact that while they were nominally responsible to the public for what they printed, they were *held* responsible by the stockholders of the enterprise. Stockholders invest their money in order to gain income. They seldom sympathize with policies which might lead to reduced income, or even a shaky financial condition.

The more a paper is owned by people who do not carry out the responsibilities of editing and publishing, themselves, the more its conduct is judged simply in terms of profit and loss. In view of the enormous capital investment now required to operate (to say nothing of starting) a newspaper, it is difficult to see much hope for truly independent journalism, except in the case of small or family-controlled papers owned by persons who think in terms of public service.

Interestingly enough, this was the solution chosen by the owners of the *Manchester Guardian,* which has been kept under the control of the same family for about a hundred years. An informing history of this paper is contained in the *Guardian* (*Weekly*) for Jan. 6, 1973, telling how in 1948 the Scott family placed ownership in the hands of a trust, with trustees who understood and respected the integrities of the *Guardian.* This move enabled the paper to continue without being wiped out by the high "death duties" normally imposed by the British Inland Revenue when property is inherited. As the *Guardian* article puts it:

> The Scotts had secured the life of their paper by disinheriting themselves. The paper really did come first. It took all they had. The Scott Trust is a personal gift to the public comparable with other great benefactions. Many have moved in time from what industry would call the private to the public sector—universities and hospitals, for example.

This seems natural and right. Why should a newspaper be of less public importance than a library or a school? Moreover, if foundations wishing to act in the public interest want to try something daring, they could free a good newspaper of the need to sell advertising, and so remove the competitive pressure, which the *Guardian* will still have to face. If we can trust the integrity of doctors in relation to hospitals, why not trust the integrity of editors and reporters, too? This might be a useful experiment. (In the United States, the *Guardian* address is 20 East 53rd St., New York, N.Y. 10022. Airmail subscription for the *Weekly* is $19.50.)

CHILDREN
. . . and Ourselves
THREE BOOKS

THE question of how evils such as the brute fact of war should come into literature for children is a hard one to answer. Even asking it may seem a bit snobbish, these days, when parents in so many lands have no choice in the matter. Perhaps the writers will solve the problem for us, with books so fine that we have no trouble in deciding that they will be good reading for children of an age that can understand them.

This seems the case with *The Little Fishes* (Houghton Mifflin, 1967) by Erik Christian Haugard, a story of a beggar boy in Naples. His father was killed in the Abyssinian war and his mother died young, leaving him with an aunt who had no fondness for him, so that he ran away. In 1943 he is twelve, dressed in rags, always hungry, sleeping with other outcasts and homeless children in a cave at the foot of the mountain in a poor district of the city, which has already been heavily bombed by the American air force.

Guido soon loses the shame of being a beggar, for he must eat. The boy tells the story, and after a page or two of description of his life he says:

> The beggar evaluates all other human beings according to their generosity, as you judge a spring from the amount of water it gives. To the starving, only food has value; hunger supplants all other feelings. . . . What I have told you is not completely true. You should beware, for often in this story, my words will be spoken out of bitterness, out of hate. The scream of the poor is not always just; but if you do not listen to it, then you will never understand justice.

There is an eleven-year-old girl and her small brother whom Guido had met on the street, and the girl helped him to carry to his cave a mattress he had found in a deserted house. One day, after a bad bombing, he finds Anna and the little boy waiting for him in his cave. Their home and family have been destroyed, and they have come to live with Guido. He gives them bread he has bought with the money from his begging.

But soon they find they must move out of the cave, for which someone has found a use. Together the three set out to walk to far-off Cassino.

A rare mood pervades this story. After telling about a beggar child called "The lame one" who had been sent away from his village because he dared to claim that he had "seen God," who wept when the other beggars mocked him, and who was finally found dead under a stairway, Guido says:

> I do not know why I have told you the story of the "the lame one." He was of no importance to anyone but himself. In one of the churches in my district is a picture of St. Joseph. The picture is made of small colored stones. One stone is missing. It is not a stone in the face of St. Joseph or even in his dress; it is in the background, near the sandal of his right foot. Yet when you look at the picture, your eyes stop at the place where the stone is missing and stay there, as if it were the most important part of the picture. Maybe if I had not told you the story of "the lame one," there would be an empty spot in my story, and you would have thought, "There is something he should have told us, and didn't."

On the road to Cassino the children find various strange companions. The daily necessity is to find enough to eat and to evade the Germans, who are retreating in the same direction and are ruthless toward all Italians, even children. Guido asks an itinerant schoolteacher who has joined them why the Germans don't surrender too, as the Italians have.

> Signor Luigi laughed. "We Italians only wanted the victory march, the glory." The teacher hesitated; then he said very seriously, as if it were a confession, "I was a Fascist."
>
> I shrugged my shoulders. "So was my father. So was everyone.
>
> "Not everyone, Guido! One must never hide behind that . . . I had read history too closely, read of Caesar and the Roman Empire. I had not noticed that in the books there were white spaces between each line; the white spaces are there to remind you of the

unspoken, the unwritten truth. When one only reads the words, and does not read what is not written in the book, then one will never learn to understand."

Often Signor Luigi would speak in a manner that confused me; and then he would remind me of the count, who had given me ten *lire*, before he left Naples. "How can you read what isn't written?" I asked impatiently.

"When a child first has to learn how to read, the words seem to be a jungle of meaningless signs, all alike. Yet he learns to distinguish one letter from another, one word from the next; and finally, he can read a whole sentence. It is more difficult and more painful to read what is not written, but it can be done . . . Remember the speeches of Mussolini I have heard him speak in Rome and I shouted with the crowd. I only thought of what he said, not what he hadn't said. He spoke of Italian glory; he did not speak of death and starvation, he did not speak of cruelty; he did not speak of the blood of innocent people."

"Yes," I said eagerly, for I was beginning to understand what he meant; but the schoolteacher did not notice, he was talking to himself.

"If I had known. If I had heard the unspoken words. I would not have shouted with the rest of the crowd. But I didn't hear them, Guido. Most of us didn't and that is our shame." . . .

The ending of this story is neither happy nor sad. In conclusion the author says:

I like to think that Anna and Guido did well, that they became very happy, that someone finally took the children in; not the count, but someone like the miller or a peasant who had land and no children of his own. Yet a kind wish is like a summer cloud, it brings no rain to the parched earth.

Another war story is about a Chinese boy who lives with his parents and little sister in a sampan on the Hsiang river. During the flight inland from the Japanese invasion, the boy fails to see that the mooring of the boat has become loose and he is swept downstream behind the Japanese lines. His parents had been ashore when it happened. Then he beats his way across country back to Hengyang, only to find the Japanese there too. On the way he is helped by Chinese guerrillas, and he manages, half by accident, to save the life of an American flyer who has had to bail out. Later, when he reaches unoccupied territory, he finds the flyer, and is adopted by the bomber squadron which is headed by the officer whose life he saved. The officer helps him to locate his parents, who are both working to prepare a great new airfield for the American planes. So there is a happy reunion of the family. This is choice blood and thunder, even if somewhat unbelievable. Yet there are touches of family life, and the kindness of the homeless and dispossessed to one another warms the heart. The book is *The House of Sixty Fathers* (Harper & Row, 1956) by Meindert DeJong.

I, Juan de Pareja, by Elizabeth Borton de Treviño (Farrar, Straus & Giroux, 1965), is a book of great charm for everybody—the story of the black slave inherited by the great Spanish painter of the court of Philip IV, Diego de Silva Velázquez, who freed Pareja and made him his assistant after discovering that he had learned to paint. There was a cruel law in Spain that no slave could practice the arts. Velázquez was a considerate and generous master, and the two were friends rather than master and slave. There are lovely passages in this book, as in the account of Velázquez' visit to Rome. Philip felt that Spain was deficient in some areas of art and asked the painter to go to Italy to make some copies and purchase sculptures. During the journey, as imagined by this writer, Velázquez conversed with Juan:

"The light here is different from that of Spain," he told me. We were being pulled slowly through fields of golden grain where blue flowers and red poppies shone among the sheaves. "Here the light seems liquid and has a soft glow, like firelight. In Spain the light is clear and sharp and blinding. Shadows are deeper, more dramatic, in Spain. Here they are gentle, and they soften the outline of objects."

Velázquez' portrait of Pareja, done in Rome, is a famous painting and the extraordinary likeness obtained was the means of obtaining him commissions in Rome, while he was engaged in painting Pope Innocent X. This modest book is a vivid picture of life in the first half of the

seventeenth century, which was a time of the flowering of European culture in many countries. It was the age of the mature Shakespeare, of Cervantes, of Rembrandt and Rubens and Van Dyke in the Low Countries; of Racine and Moliere in France, and Galileo, Newton, and Harvey in the world of science. Yet in those days slavery was a commonplace in Spain, and had been since the time of the Moors. One has the impression, however, that slavery without racist hate and fear, while inherently evil, was still a very different thing from its later practice in the American South. The reader cannot help but feel this in the story of Juan de Pereja.

All these books make pleasant reading. One reason may be that writers are happy to write simply and affirmatively about human beings in various situations, without any sophisticated trimmings or the wary psychologisms that grownups seem to require. Just as it sometimes seems that the modern world has much to learn from the child psychologists, who must have wholesome and unsuspicious minds, so needed instruction may be obtained from the writers of the best in children's literature. There are qualities in these books that are lacking in the fiction for adults. They are healthy-minded and do not luxuriate in weakness, failure and defeat.

FRONTIERS

The Goal of Responsibility

THE overwhelming power of government and of bureaucratic agencies is the subject of much critical and outraged comment, these days. Recent Nader studies have brought a new vigor to muckraking enterprises, and while Mr. Nader's intention is not to discourage or depress his readers, but to arouse them to responsible citizenship, the work of his researchers often has the effect of making the tasks of honest and efficient self-government seem beyond human capacity.

A particular target for criticism today is the Food and Drug Administration. The inefficiencies and partisanship of this bureau was revealed by James Turner's Nader study, *The Chemical Feast* (Grossman paperback, 1970, 95 cents), and more extensively exposed by another writer, Omar Garrison, in *The Dictocrats' Attack on Health Foods and Vitamins* (Arco Publishing Co., 1970), also a 95-cent paperback. Both these books are worth reading, if only to see the extent of the misuse of public funds and the way in which small industry (such as the health food industry) may be persecuted by regulatory agencies which are sympathetic to the powerful companies which make food products for the mass market.

But in considering these things one is likely to forget that the Food and Drug Administration came into being as a result of the Food and Drug Act of 1906, largely the brainchild of Dr. Harvey W. Wiley, who was head of the Bureau of Chemistry of the Department of Agriculture from 1883 to 1912. Dr. Wiley was dedicated to the ideal of pure and good food for the people of the United States, and he supported his contention that this law was needed by an experiment involving twelve employees of the Department of Agriculture, who ate only what he told them to eat for five months. After this period of "controlled feeding," he declared that "many items in the food supply were in fact dangerous." Dr. Wiley got his legislation, but in 1912 he resigned in protest against the failure to enforce the Pure Food and Drug Law. The legislation, says Turner in *The Chemical Feast,* was emasculated in behalf of the food manufacturing interests.

One thinks, here, of Larry Cole's comment at the end of *Our Children's Keepers* (a book about jails for children), in which he points out that the three groups responsible for the terrible conditions in penal institutions for the young are "the civil service, the unions, and the professionals." Each one of these groups had an honorable—one may say necessary—origin. The civil service corrected the spoils system in politics, the unions protected labor from exploitation by employers, and the professionals established higher standards of care and treatment. Then Cole says:

> But for the institutions that now affect children, these reforms have, as far as the children are concerned, gone full circle, and represent the legal and organizational base on which the exploitation of children now depends.

The sequence seems to be—first, vision and intelligence, then legislative reform, which is followed by its bureaucratic routinization, and then by corruption and misuse. Finally, along comes the muckraker with his vivid illustrations of wrong-doing and the abuse of power, ending with his exhortations to the public. For example, at the end of his book Mr. Garrison writes of the arbitrary power exercised by the FDA, commenting:

> Such purported authority derives not from our Constitution nor our laws (no matter how much biased judges may torture or twist them), and not from Congress, which intended the legislation it passed to be protective, not compulsive. No, ultimately the despotism of regulatory agencies is derived from one and only one source—*public apathy*.
>
> Conversely, public action can correct the situation and halt the insidious drift toward dictatorship. Public action represents nothing more than the collective efforts of individuals.
>
> There are two principal ways in which the private citizen can resist the encroachments of

> bureaucracy. The first is to shoulder the responsibility for his and his own family's welfare, instead of looking to the government for decisions on such matters as diet, self-medication, selection of a physician, and dealings with the marketplace.
>
> . Such responsibility means making the effort to learn for oneself the truth concerning nutrition, drugs, medical research, and so on. It must be abundantly clear to the reader by this time that the Voice of Authority out of Washington is not to be trusted. It speaks too often for vested interest or out of prejudice, or even with political aims in view.
>
> For years the FDA and its AMA advisory panel have been conducting educational campaigns to assure the public that they need not have any fear regarding pesticides in the food they purchase at the supermarket, and to warn against the "crackpots and food faddists" who thought otherwise.
>
> Now comes the moment of truth: recognized authorities in various scientific disciplines have voiced real alarm over the amounts of poison people have been allowed—yes, encouraged—to ingest into their bodies. How serious and how widespread the damage is to national health is still not known.

How true! we may say to ourselves; but the same sort of report could be written concerning dozens of bureaucratically regulated areas of enterprise.

The point, however, is that installing a new set of bureaucrats does not really change things much, and never permanently. Nor is it entirely possible for us, as Mr. Garrison urges, to become "expert" in so many vitally important areas. Even he has recourse to "authorities" for the evidence that the poisons people consume have become a serious matter.

It should be plain, then, that wherever you turn, all human societies involve varying degrees of mutual dependence and trust, that when trust becomes impossible, the society breaks down. And a complex society like ours will of course break down much more rapidly than the simple ones for the reason that the self-reliance Garrison urges is more difficult for people who have been trained for generations in dependency upon a wide range of services that we no longer know how to perform for ourselves.

In principle, the failure of bureaucracy to serve the people seems to lie in the transfer of authority to persons lacking in the vision and concern which first caused the agency to come into being. Such persons have the role of responsibility, but not the feeling that should go with it. The same sort of thing happens to scientific knowledge, which is knowledge that can be superficially acquired by unimaginative and morally ignorant people, who can then use it without responsibility. At issue is our basic conception of knowledge, authority, and what is useful to man. If we are able to change our thinking on such subjects, we may be able to change the quality of our social dependencies, and then citizens may become responsible and public servants trustworthy, once again. Polanyi's *Personal Knowledge* has an important bearing on all such profound questions and problems.