

A TROUBLESOME INHERITANCE

THE founders of the modern scientific world-view took over far more from their theological predecessors than they knew. However much the advocates of the scientific spirit protest that science is fundamentally a *method*, an attitude of inquiry and a temper of impartiality, it is nonetheless demonstrable that the sciences still bear the impress of the cultural matrix in which they were born. Some of the more superficial artifacts of religious belief have of course been dropped. Modern physics has completely abandoned the Aristotelian notion of inert and characterless matter. The old "billiard-ball" atom is wholly forgotten. Matter is now regarded as a kind of "habit" acquired by energy—a mode of behavior or a pattern of motion. And meanwhile, the devitalized "nature" which scientists obtained from the Church—a barren and passive waste in which all creativity was explained by "the will of God"—is slowly regaining some of its primeval mystery and potentiality. With the gradual passing of mechanistic theories of behavior, an element of animism, purified of superstition, has been restored to nature, and although the wonders of organic forms are by no means understood, there is at least a reticence toward offering simple, mechanical explanations.

But the most all-pervasive inheritance of science from religion—only now beginning to be recognized—is the compulsive need to be *right* and to have *all* the answers, at least in principle. It is true of course that scientists have made much of the fact that they have "many things to learn." Comparing themselves favorably with believers in religious dogma, they have pointed out that they await the outcome of research and experiment, without permitting speculation or wishful thinking to corrupt their devotion to truth.

The fact of the matter is that many enthusiasts of science were unable to avoid an unfortunate

competition with religious infallibility and certainty. If they were to replace religious with scientific authority, they needed, they felt, to do an equally thorough and complete job of "explanation," with the added virtue of making their explanations *true*. Now it is possible, perhaps, to have wholeness of thought without completeness of science. At any rate, the philosopher who takes seriously the discipline of metaphysics believes that this is possible. Such a thinker will seek for first principles consistent with the scientific attitude and which seem unlikely to be invalidated by new discoveries of scientific fact. On the contrary, he will expect his metaphysical views to obtain a species of confirmation from particularized research. His philosophic conception of the universe and of being and nature has the role of a grand hypothesis by which he endeavors to live. His theory of man, while it may be incomplete, and even sketchy in places, will begin with the proposition that man is a truth-seeking being who is capable of separating the true from the false, and who, despite his "biases," will in time be able to correct the mistakes inherent in observations made local by the circumstances of time and place.

Without metaphysics, the scientific thinker must rely on science alone, and where there is not yet any science, he is obliged to invent or improvise; or worse, he may smuggle in his prejudices and take them for granted as though they were demonstrated scientific truth. The prejudices are especially evident in works which press the scientific viewpoint as a kind of ideology, against some other way of looking at things which is regarded as backward or "unscientific."

A passage in James Harvey Robinson's *Mind in the Making*, first published in 1921, affords an illustration of tendentious writing in a supposedly

scientific volume. Prof. Robinson, one of the founders of the "New History" school of historical studies, had this to say in a chapter headed, "Our Animal Heritage" (our italics):

. . . there *must* have been a time when the man-animal was in a state of animal ignorance. . . . He was *necessarily* self-taught. . . . His mind *must* have corresponded with his brutish state. He *must* at the first have learned just as his animal relatives learn—by fumbling and by forming accidental associations. . . . Of mankind in this extremely primitive state we have *no traces*. . . . Man in "a state of nature" is only a *presupposition*, but a presupposition which is forced on us by compelling evidence, *conjectural* and inferential though it is. . . .

Without the italics added, a casual reader might pass this paragraph without particular attention, yet look at all the "musts" and similar words in it! What sort of science is this? Prof. Robinson had an axe to grind. He was determined to win agreement for these opinions. But *why*? He could have waited a bit, for less "conjectural" evidence. Why was all this certainty "forced" upon us? We had always thought that "conjectural" and "inferential" evidence should produce insistence on something quite different—such as caution, doubt, and suspended judgment.

Prof. Robinson, we suspect, was envious of the blessed security of the simple story of Adam and Eve in the Garden of Eden. He wanted science to have a picture of similar completeness, even if very different in aspect. He wanted to be able to say, "Don't believe that—they can't prove it; believe this, we *can* prove it."

Probably all MANAS readers can remember boyhood or girlhood days of wandering through some impressive museum, and finding, in the Hall of Man, those beautifully finished sculptured heads of man's supposed ancestors. The story usually begins with a bust of the Trinil Man, or *Pithecanthropus Erectus*, sometimes called the Java Ape Man, whose shaggy features and fierce mien are supposed to instruct us about the first or very nearly the first creature who rose from the beast to man's estate. Then there were the

Heidelberg Man, the Piltdown Man, the Neanderthal Man, and finally the Cro-Magnon Man of Southwestern Europe, who alone among all these weird-looking reconstructions at last made you feel that you were among friends.

For the child spectator, guided by kindly elders intent upon his "education," those plaster casts had the authority of holy writ. There, without qualification or warning of uncertainty, was the Origin of Man. And in school the child might also encounter carefully told tales of the lives and adventures of ape-men, complete with illustrations, in neat little books edited by people who were qualified by doctors' degrees in education to deal with juvenile minds.

They were fighting the good fight, these conscientious educators and museum curators. They were artfully undermining the old, competing legend of miraculous creation. But they didn't really *know*. Actually, the mortality among those busts of ancient man has been exceedingly high. Before he died, Eugene Dubois, discoverer of the Java Man, declared that in his opinion it was not a man at all, but an ape. True, Dr. Dubois died a Catholic, and was perhaps persuaded to reverse himself as a last act of piety, but a little doubt on this subject may be wholly in order. A few years ago, the *Eoanthropus*, or Piltdown Man, was discovered to have been a scientific hoax, combining the jaw of a chimpanzee and some quite recent human brain fragments that had been treated to appear of great geological age.

And now, from *Newsweek* for Jan. 7, we learn that the Neanderthal Man, who roved Europe before the coming of the Cro-Magnon, and who was the most numerous of the supposedly ape-like of man's ancestors, was not really ape-like at all! The *Newsweek* story, a bit flip, but not inappropriately, we think, tells how a Johns Hopkins anthropologist revolutionized familiar conceptions of Neanderthal Man at a recent meeting of scientists at Dusseldorf. His learned colleagues apparently shared his views:

Through the years, they agreed, Neanderthal man has emerged a sadly misunderstood creature. Relegated by some bigoted early Darwinists to the status of a "savage animal" whose skull contours reminded them of "the Negro, the Mongol, the Hottentot, or the Irishman" (these Darwinists were mostly Englishmen), Neanderthal was viewed somewhat more scientifically by the more thorough researchers of the twentieth century.

Traditional pictures of Neanderthal man as a stooped loutish beast with outthrust jaw and shambling gait are the most incorrect of all, reported Dr. William L. Strauss Jr. of Johns Hopkins. These portrayals, the anthropologist said, ignore two important facts: The spinal curvatures once thought peculiar only to apes are also found in many modern men of upright posture. Most Neanderthal bones, furthermore are sadly worn and distorted by arthritis.

"If a Neanderthal were dressed in modern clothes" concluded Dr. Strauss, a native of Baltimore, "he would seem little different from the denizens of New York City subways."

This is interesting confirmation of what Bertrand Russell wrote in 1925, in an introduction to Lange's *History of Materialism*. "Historically," he said, "we may regard materialism as a system of dogma set up to combat orthodox dogma. As a rule, the materialistic dogma has not been set up by men who loved dogma, but by men who felt that nothing less definite would enable them to fight the dogmas they disliked."

Years ago, Henry Fairfield Osborn anticipated these revelations in an article in *Science* (May 20, 1927), saying:

I regard the ape-human theory as totally false and misleading. It should be banished from our speculations and from our literature not on sentimental grounds but on purely scientific grounds and we should now resolutely set our faces toward the discovery of our actual pro-human ancestors.

The compulsion to make man resemble an ape is being more and more exposed. In *Apes, Giants, and Man* (University of Chicago, 1946), Franz Weidenreich shows how Thomas Huxley distorted both human and ape postures in his drawings to make them seem more closely alike. In another place, Weidenreich says: "The

discoveries of recent years have revealed that the tooth patterns of early man, even in the most primitive forms, remained basically the same as those of the later phases and do not show signs of a definitive approach to special patterns of recent anthropoids." Similar disillusionment comes from the careful researches of the British paleontologist, Frederic Wood Jones, who reveals in his opening chapter of *Hallmarks of Mankind*:

The whole elaborate structure erected upon the discovery of a single tooth of the so-called *Hesperopithecus haroldcooki*' the actual relic of a long-extinct peccary (*Prosthennops*), astonishingly promoted to the dignity of being claimed as the American Pliocene Anthropoid Ape that resembled "the human type more closely than it does any known anthropoid ape" (Gregory and Hellman, 1922) must be lived down before more recent claims (*cf. Gigantopithecus blacki*, von Koenigswald, 1935) based upon no more evidence than that afforded by three mutilated molar teeth, are regarded as proven.

Dr. Jones concludes his volume:

If the Primate forms immediately ancestral to the human stock are ever to be revealed, they will be utterly unlike the slouching, hairy "ape men" of which some have dreamed and of which they have made casts and pictures during their waking hours, and they will be found in geological strata antedating the heyday of the great apes.

Still another shock was administered to the believers in the ape-man theory of human origins, or even the "common ancestor" theory, when, last year, Dr. Johannes Hurzeler, Basle paleontologist, announced that bone fragments unearthed many years ago in Northern Italy have now been identified as "man-like," despite the fact that they were dug out of coal strata known by geological standards to be ten million years old! (*New York Times*, March 10, 1956.) These remains established that a most-un-ape-like family of man, or forerunner of man, was well along in its evolution quite independent of the beasts which scientists have thought were our "ape-ancestors"—*Proconsul* and *Dryopithecus*. The Hurzeler find, named *Oreopithecus*, is expected

by its discoverer to outlaw "the opinion that man came from an ape-like creature."

So, one by one, our fabled "ape ancestors" are dropping out of sight. We would probably be better off if we had never had them at all, and had been willing to learn to live in suspense concerning the mystery of human origins, while waiting until both our science and our philosophy developed to the point of accurate information on the subject. But constituted as we are, it is likely that the dogmas of religion would never have been overcome at all, except by being forcibly displaced by the new dogmas of science. We seem to be victims of a pathological fear of uncertainty, of being convicted of "ignorance," preferring conventionally accepted errors to the condition of open admission that we just don't know.

This state of mind is quite clearly a compulsion inherited from orthodox religion, but that it should have been transferred to science and continued as a habit enjoying full respectability, is something we should look into. No one can claim to be truly scientific until he has learned to live unafraid with doubt and uncertainty.

REVIEW

"THE GREAT CHAIN OF LIFE"

SINCE 1948, the writings of Joseph Wood Krutch have served as perennial encouragement to the editors of MANAS. Readers who have stayed with us this long have perforce come to know Dr. Krutch in more than nodding acquaintance. Whether writing in the terms of intellectual and social evaluation, or simply on "nature," the underlying philosophic tone of his books and essays guarantees that nearly every passage contributes some elaboration or illumination to the themes characteristic of MANAS. With pleasure, therefore, we observe that the occasions for quoting Dr. Krutch grow more rather than less numerous with the passing years.

The Great Chain of Life (Houghton, Mifflin, 1956) is another invitation to the reader to discover kinship with every form of life in the organic universe. What Spinoza sought to accomplish in one way, and Leibnitz in another, by means of philosophy, Krutch manages by specific observations and enthusiasms which allow each reader to supply his own philosophic context. Some two years of enjoyable thinking and writing led to the present volume, whose epilogue offers a clear statement of Krutch's central theme:

For some time I had been thinking that I wanted to write a book about the characteristics and activities of living things. During the week or two just before, I had been wondering with what activity or characteristic I should begin. Reproduction, growing up, and getting a living are all, so I said to myself, fundamental activities. Combativeness in the face of rivals, solicitude for the young, courage when danger must be met, patience when hardships must be endured, are all typical characteristics. But . . . is any characteristic more striking than the joy of life itself?

No starting place is less usual or would have seemed less suitable to many biologists. Some would certainly prefer to begin with origins—with the simplest creatures now living or with the theoretically even simpler ones from which they evolved. Others might choose an abstraction, but the abstraction would probably be "the struggle for existence" or "the survival of the fittest." Pressed to name the most fundamental characteristic of life they would probably reply: "The irritability of protoplasm."

With them on their own ground I certainly had no right to quarrel. The cardinal and the robin do have to engage in a struggle for existence. The protoplasm in the cells of their bodies is, like that in mine, "irritable." But when I hear the word "robin"—especially when I hear a particular robin singing on a bough—I do not think: "Irritable protoplasm so organized as to succeed in the struggle for existence." I think that no more than when I hear my own name I think: "Member of the American middle class, subdivision intellectual, caught in an economy where he is not very comfortable and developing opinions which are the produce of his social situation." An equally significant sort of fact about both men and birds is that individuals are more or less happy, terribly glad or terribly sorry to be doing what they are doing, and capable of making more or less interesting comments on their situation.

With this fact science can hardly concern itself. Such facts are not measurable or susceptible of objective demonstration. But to men and to robins alike they are nevertheless very important and very real. If this were not so I do not think I should ever have taken much interest in either human or natural history. And if I consented in the end to begin this book more conventionally, it was with some misgiving.

Men have surrendered a good deal of their capacity for spontaneous happiness, and there may be compensations. In any event our situation is one for which there is probably no racial remedy. Yet even for us happiness is still important and it is, or at least once was, a fundamental characteristic of life. Nothing the lesser creatures can teach us is more worth learning than the lesson of gladness.

Krutch is a great analogist, and it is the analogies supplied in *The Great Chain of Life*—either overt or implied—which ensure that his detailed accounts of insect or animal life become far more engaging than ordinary "natural history." The chapter, "The Need for Continuity," for example, contemplates the caterpillar-butterfly transition and moves thence to the potentiality of "a new life" existing through all of what we call the natural world. Sometimes we call the process "natural selection," as applied to genera and species, and sometimes we are simply fascinated by cocoons. But the promise of a new life is, in a special sense, the unalterable joy of existence in any form. As we consider this, the way opens to various reflections—

to the effect that the present form is *only* the present form, and that the "something more" we also sense is the "really real." Elsewhere Krutch carries this sort of thinking to a provocative stage by suggesting that death is a welcome necessity, since "nature would not have been able to experiment very freely with new forms if the earlier experiments were not removed after a reasonable time. The potentially immortal amoeba got nowhere. Only creatures evolved." Dr. Krutch even allows himself to become so "unscientific" as to suggest that animal life has something to teach us about *joy*; animals seem to know enough about "joy" to avoid the frantic seeking for pleasure, which is very different:

. . . they know at least one thing which we seem progressively to be forgetting and they have one capacity which we seem to be allowing to atrophy. To them joy seems to be more important and more accessible than it is to us.

Pleasure, which we seek as a compensation for the joy we so seldom feel, is both worth less and harder to come by. It requires some positive occasion and adequate occasions become harder and harder to create. Pleasure sickens from what it feeds on, joy comes easier the more often one is joyous. We relapse into melancholy or discontent and boredom. We suffer one or the other if we find at the moment no occasion for a different emotion. But nature, so it seems, relapses in joy. Is any other art more worth learning?

The extent to which our present alienation from "Great Nature"—and consequently from ourselves—derives from past theological resistance to any kind of "natural" philosophy, would be hard to say. But that the era of Darwin and Wallace was an era of enthusiasm for many precisely because the idea of Evolution helped Man to become once again a link in "a great chain of being," there can be little doubt. It is not complimentary to theological Christianity to realize that, throughout the whole gamut of world cultures, only the one called "Christian" encouraged this alienation in the first place. The range of the Greek mind stretched all the way from the lower creatures to the symbolic gods of Olympus, and provided psychological connectives between them. And it has been pointed out that one of the reasons why Buddha reached to the heart of Asian sympathy,

despite his high austerity, was because he taught gentle love for all the lesser creatures.

As further indication that the idea of the "great chain of being" has had much to do with the sort of religion which inspires—the religion of nature—we conclude with a passage from Edwin Arnold's *Light of Asia*, depicting Buddha's realization that the man who turns on nature, turns on himself—or, after first turning upon himself, loses contact with natural wellsprings of inspiration:

Onward he passed,
Exceeding sorrowful, seeing how men
Fear so to die they are afraid to fear,
Lust so to live they dare not love their life,
But plague it with fierce penances, belike
To please the Gods who grudge pleasure to
man;
Belike to balk hell by self-kindled hells;
Belike in holy madness, hoping soul
May break the better through their wasted
flesh.
"Oh, flow'rets of the field!" Siddartha said,
"Who turn your tender faces to the sun—
Glad of the light, and grateful with sweet
breath
Of fragrance and these robes of reverence
donned
Silver and gold and purple—none of ye
Miss perfect living, none of ye despoil
Your happy beauty. O, ye palms, which rise
Eager to pierce the sky and drink the wind
Blown from Malaya and the cool blue seas,
What secret know ye that ye grow content,
From time of tender shoot to time of fruit,
Murmuring such sun-songs from your
feathered crowns?
Ye, too, who dwell so merry in the trees—
Quick-darting parrots, bee-birds, bulbuls,
doves—
None of ye hate your life, none of ye deem
To strain to better by foregoing needs!
But man, who slays ye—being lord—is wise,
And wisdom, nursed on blood, cometh thus
forth
In self-tormentings!"

COMMENTARY

A MAJOR EFFICIENCY

ONE good thing about a book like Leonard Wickenden's *Our Daily Poison* which isn't mentioned in *Frontiers* is its influence in the direction of self-devised health foods. Perhaps they shouldn't be called "health" foods, since almost any food which is obtained by original means, by-passing the commercial "food processors," is likely to be better than what is bought at the conventional market. Actually, there is an element of "adventure" in the planning of foods of this sort. Suppose, for example, you want to experiment in baking with fresh, wholewheat flour. First, you have to find out where to buy the wheat. Unless you live in a wheat-farming area, or in a large city, this may be difficult.

The next step is to get it milled. If you want to mill it yourself, you may have a problem in finding a grist mill within your means. Ralph Borsodi, in *This Ugly Civilization*, reports that in 1927-28, the Sears, Roebuck catalog offered a power-driven flour mill for \$10.35 (without motor). But if you call Sears on the phone in 1957, you find that this mill is no longer available. As the quest is pursued, it becomes evident that prices on home-size flour mills have gone up. There is one at \$150 (complete with motor, and almost commercial capacity). The least expensive power mill we could locate sells at \$65, but it can grind only a single fineness of flour. For \$30 more, you can have an adjustable grind.

A simple solution, however, turned out to be a corn mill, made in Ohio for export to Mexico, where it is used by the people to grind their corn meal for tortillas. This mill sells—or used to sell—at \$7.50 and works by hand power. But in a few minutes you can grind up enough wheat to make several loaves of bread. The burr is adjustable. Such flour is not "stone ground," of course, but the main objection to steel burrs is that they heat up and affect the quality of the flour. A

little grinding at home doesn't make the burr very hot, so that this objection doesn't matter.

Once you get the wheat and the mill, you have everything that is needed to make your own flour, and the taste and nourishment of bread, muffins, biscuits, and pancakes made with this flour makes the effort seem very slight. Further, if a child participates with you in these investigations and their final production, some "basic education" proceeds without any ado or fuss. This is far better than a school-conducted "tour" of the local mill or the local bakery, which, although instructive in a minor way, is almost certain to confirm the impression that the customary way of doing things is not only the best, but the only way as well.

CHILDREN ... and Ourselves READING SELECTIONS

FOR parents concerned with selecting worth-while reading for their children, the *Saturday Review* seems to be the best over-all bet for "professional help." Each November the *Review* issues a "Fall Guide to Children's Books," edited by Frances Lander Spain, who is Coordinator for Children's Services for the New York Public Library. Twenty pages are devoted to listing and describing briefly the recommended volumes, according to children's age-groups, from which it is easy to select picture books, fables, folk and fairy tales, or volumes on Nature for the young.

An accompanying article, "Helping Johnny and Janie to Read," is contributed by Frances Henne, Associate Professor of the School of Library Service at Columbia University. Prof. Henne, fortunately, does not believe that "lists" guarantee quality. She notes that, in reading programs for children as in everything else, all is not gold that glitters. Many communities, in the flush of library association enthusiasm, occupy themselves "all too often with a diversity of secondary activities. Efforts to further the cause of reading are redoubled. Schemes, plans, projects, and lures are introduced—any thing to get children to read anything. Commendable though the reasons motivating these enterprises may be, basic needs are frequently ignored or overlooked in some instances; and in other instances standards for children's books and reading are compromised in the name of expediency."

Amen! We have ourselves observed the mostly nonsensical promotions by which primary school children are induced to compete with one another—to see, for example, how many volumes can be "covered" during the summer. A system of "gold star" prestige-rewards accompanies, but this rapid sort of competitive reading affords no indication of whether the child has comprehended or even thought about the words of the many pages turned, and is hardly calculated to foster "good reading habits."

On the other hand, a wholesale use of television to keep children occupied has stimulated many parents to seek some means of developing the creative imagination—which television hardly assists—and

such criticism, once seriously begun, carries beyond diatribes against too much TV. As Prof. Henne puts it, "Many lament that imaginative literature is being pushed to the wall by a plethora of books about the policeman, the dairy, the microbe, and the dinosaur; others ask for more books about familiar subjects, particularly for the beginning reader." Miss Spain indicates her own point of view:

... what man is there of you whom if his son ask bread will he give him a stone? No one, we hope; yet in the realm of the mind sons—and daughters—are being given poor substitutes for the fare they crave. Children are reading, will read, if they can get the books they want. Books whose authors have something to say to youth, and say it with originality, imagination, and strength. These books—heedless of vocabulary, sentence length, or pattern—nourish the growing child, give him something he can stretch up to, hold before him examples of the beauty of ideas executed with clarity of style and excellence of design. We who work with children—parents, teachers, and librarians—have a rare opportunity to see that the children we touch are given bread when they ask it.

As we see it, the measure of a good children's book is in the care, thoughtfulness, and inspiration of its author. As in all walks of life where a good market prevails—and despite TV, business is booming for children's book authors—a great number of volumes are turned out by formula. These are obviously the ones to be avoided, and the selection undertaken by the *Saturday Review* should help parents through the maze.

We also might note a much briefer list supplied by Norma Rathbun and Doris Moulton for the December *Progressive*, under the heading, "Outstanding Children's Books." The very brevity of this list is appealing. Only six titles, for instance, are listed as "especially recommended" for ages two to six.

But having paid our respects to such efforts to encourage and direct children's reading, it is time to grumble a bit. Library Association recommendations, however well conceived, cannot do the parents' job. The right book for the right child at the right time can only be selected by a mother, father or teacher who is in genuine communication with that child. And the trouble with ambitious attempts at "coverage" such as the *SR* list is that they boil down to a project in

separating objectionable titles from unobjectionable ones. The result is a list which might well be headed, "Nothing Really Wrong with These."

A parent would be foolish to think that a subsequent purchase of several books, after cursory inspection of cursory reviews, is a major contribution to his child's education. For one thing, the best book for the child is a book which both he and his parent can enjoy—and discuss together. Few children's books are meaty enough for adult fare, and few adult books are comprehensible or interesting to the child, but these few are all-important. The parent needs to seek them out, and, here, one hour spent in the library is worth a thousand second-hand recommendations.

A plethora of children's books unfortunately guarantees watered-down culture for the young, just as the mass-produced adult volumes—and their professionally exuberant reception by reviewers—signals a decline of really useful criticism. A critic must be something of a philosopher-psychologist, but a reviewer may be simply a salesman. And the temper and perspective of the reviewer-salesman seems somehow to communicate itself to all organizations designed to promote "more reading."

This distinction between critic and reviewer is suggestively treated by Geoffrey Wagner in the current *American Scholar* under the title "The Decline of Book Reviewing." Mr. Wagner points out that "the large reviewing media have now driven the critics from their doors, and so made for increasing distrust on the part of the public." Mr. Wagner continues:

Who has not heard complaints from some friend who read a eulogistic review of what turned out to be a rotten novel? While there can be no question of the reviewer today not being allowed the free play of review, one cannot help observing that the big review media seem to employ extremely unexact and optimistic men and women. There is even the suspicion abroad that a reviewer is dropped like a hot potato should he consistently "pan" the books he is sent. (The sourpuss ! Some poor devil has to sell these things.) At the same time, the university critic, with standards to maintain, with the eyes of his colleagues upon him, dare not—even if his conscience would let him—be as friendly toward the new slick, empty novel he is sent as his editor (whose job depends on running the supplement which is supported largely by publishers' advertisements

anyway) would like him to be. The result is that after a while the editor gets tired of the adverse reviews coming in from the critic, and he hires a reviewman instead. The critic he reserves for those occasional reviews of books by other literary critics.

This, we suspect, is what every parent is up against when he tries to find books which will help his children. The only sure recourse is to awaken one's own critical faculties, and to have faith that even small children may be helped to develop their own. An older practice—that of letting the young stumble around in adult literary terrain—also has much to recommend it. The sustaining force of a powerful novel can sometimes pull the child along, even though many of the words and some of the intricacies of plot are not understood. A child can grow up to a number of books presently beyond him—but not so far beyond him as we may think. So we suggest that parents in an experimental mood try finding a children's book good enough for *them* to enjoy—using whatever lists seem most auspicious in the original weeding-out process—and simultaneously try out on their child a long-loved adult book of suitable proportions. The aim should be to leave the classification of "children's books" behind just as fast as possible.

FRONTIERS

Things Practically Nobody Knows

LEONARD WICKENDEN, a chemist of repute, who has in print two books on organic gardening, *Make Friends with your Land*, and *Gardening with Nature*, has lately turned his attention to a less attractive but equally important subject, the pollution of food products by chemical treatments. As a result he has published a thoroughly shocking book, *Our Daily Poison* (Devin-Adair, \$3.00). Among other things, it is a sober description of what growers and food processors are doing to fruit, vegetables, meat products, and grains, all in the name of "science" and "progress."

MANAS readers are doubtless familiar with some of the material in *Our Daily Poison*. But to have these numerous facts gathered into a single book is a particular advantage, the more so because the author is careful to support what he says from scientific reports, while his warnings, so far as we can see, in no way exaggerate the dangers with which he is concerned.

Books like this help to strengthen the movement for naturally grown and naturally prepared foods, and for medical independence. Even more, however, they illustrate to the general reader what a great mistake it is to assume that "the established authorities" are always right. This is a time when the rejection of "authority" is *almost* a good thing in itself, for the reason that people everywhere, whether in supposedly "democratic" or "totalitarian" societies, are increasingly becoming captives of imposing authorities. They are told what to believe in matters of both economics and politics, and also religion, and are led off to war in behalf of causes which even militarists find it difficult to justify. The habit of belief in authoritative utterance may be much worse, in the long run, than being wrong on one's own judgment, since a man who will use his own judgment has at least a fighting chance of discovering his mistakes, while those who take their judgment from others eventually lose both

inclination and capacity for private decision. There is no recovery from this, except, perhaps, through the long, slow way back from disaster.

One section of *Our Daily Poison* deals with the insecticides used to control pests in orchards and farms, homes, restaurants, hotels, and kitchens generally. These poisons include the arsenic compounds that growers have employed for many years, DDT, and other more lethal poisons of recent origin. Mr. Wickenden starts out with reports of "accidental" deaths of persons exposed to these materials. Here is a typical report, quoted by the author from the West Coast magazine, *Fortnight* (Sept. 15, 1954):

A mother, aged 38, to whom the term "ill-health" was a stranger, complained of fatigue, headache, dizzy spells, pains in the back and arms, loss of appetite and weight, together with the blues. . . . Laboratory tests showed evidence of moderate liver damage. DDT poisoning was suspected. Persistent questioning finally revealed that a DDT aerosol bomb had been used frequently in her bedroom, for the control of fleas. Avoidance of DDT and similar compounds, together with treatment, resulted in recovery after four weeks. Three months later, the whole picture recurred and the patient admitted using the spray again. She could not believe that DDT was responsible.

Mr. Wickenden presents evidence suggesting that DDT is connected with incidence of polio, and that it may be correlated with the increase of hepatitis, a disease which in 1955 had reached fifth place in the Health Department's list of communicable diseases. Cattle, too, suffer from a new affliction traceable to consumption of a chlorinated hydrocarbon (used as a lubricant in the machinery that pellets animal feed). DDT is a chlorinated hydrocarbon.

The use of powerful poisons to eliminate insect pests has turned out to be a race with nature's resourceful response to such methods. Mr. Wickenden writes:

The task of creating an insectless world fortunately proved too great for puny man. Nature went serenely on her way and insects are still with us. Even the pests against which DDT was supposed to

provide an unfailing weapon, went on living and reproducing. Indeed, it was not long before their numbers were increasing as they had never increased before.

Two things had happened. DDT had upset the balance of nature by killing the predators that had hitherto kept the pests in check, and, all too quickly, first one breed of insects then another built up immunity against the master spray. Within a few years, flies, which were supposed to be exterminated, had become completely indifferent to DDT and, when sprayed with it, almost seemed to enjoy it. Other insects built up similar immunity.

Mr. Wickenden quotes at length from reports of Congressional hearings on the use of insecticides. It seems that new pests are constantly appearing, so that the demand for stronger poisons and more poisons continues. The destruction by DDT is indiscriminate. It kills the farmer's insect friends as well as his foes.

DDT is well known to the medical profession as a liver poison. In an article in a medical journal reporting on the rise of hepatitis since 1945, the following is found:

The most curious aspect of the rise in hepatitis is that it has occurred simultaneously in cattle, in dogs and in other farm animals. . . . Human infectious hepatitis is not transmissible to dogs or cattle, or vice versa. How, then, account for this situation?

Without exception, every one of the chlorinated cyclic hydrocarbons is a liver poison. This is true of the entire series. . . . Chlorinated naphthalenes were shown to produce hepatitis as long ago as 1936, and were responsible for many deaths among workers in industry, long before these compounds were used in agriculture. Exposure to the whole group of compounds is now universal, in the United States, and it appears that few persons escape storage of these toxic agents in the body fat.

In 1952, DDT was being produced and used at the rate of more than half a pound per person in the United States—about 100,000,000 lbs. To this must be added an equal volume of other chlorinated carbon compounds of the same or greater toxicity. The relation of these gross figures to the health of the people becomes evident from the testimony of Dr. Bernard Krohn,

of Long Beach, California, before the Delaney Committee. Mr. Wickenden relates:

Dr. Krohn . . . reported some of his own findings. He referred to four of his patients who complained of exhaustion, irritability and mental dullness following repeated exposure to DDT over a period of six months. Samples of their fat were analyzed by the U.S. Food and Drug Administration. DDT was found in concentrations of 15, 6.5, 19 and 35 parts per million, respectively. These are all above the acute toxic level. Signs of liver damage existed.

In a group of cadavers, chosen at random at a large general hospital in Pasadena, chlorinated hydrocarbon pesticides (including DDT) were found in the fat of 19 out of 20. In 4 of them, the amount found was over the acute toxic limit.

Among 14 persons living in an agricultural area in which chlorinated hydrocarbon pesticides had been used, 8 had signs and symptoms of pesticide poisoning. In one of them, the amount found was 4 times the acute toxic level. All 8 had suffered from their symptoms for several months.

The obvious problem, of course, as regarded by specialists working in this field, is to know *how much* poison spray can be used without endangering the health of the one who will eat the fruit. The difficulty of a safe decision is pointed out by Dr. Krohn:

A level [of poisonous spray content] in a single piece of fruit, which might not be toxic to anyone, might be toxic to everybody if they ate enough pieces. If, instead of one orange they ate a dozen in a period of three days, they would get 12 times the dose, and though they would excrete some of it, they would still store a good bit of it.

Those who suppose that the effect of poison sprays can be eliminated by washing the fruit or vegetables purchased in the markets suffer from an illusion. Mr. Wickenden says:

The modern pesticide is very efficient. It does not merely coat the outside of an apple; it penetrates the skin and impregnates the pulp. It passes through the skin of a potato and even through the shell of a peanut, so that all the washing imaginable will not remove it. When cattle eat crops that have been sprayed, or when the cattle or the barns which they occupy have been sprayed, poison becomes stored in the animals' fat and, when the meat is eaten, passes

into the fat of the human consumer. Similarly, it will pass into milk butter and cheese.

The fundamental reform demanded by Mr. Wickenden and by many others is the practice of organic gardening, which relies on other means than poisons and chemical fertilizers to produce wholesome food. Already the general environment has become so polluted by these poisons that Mr. Wickenden is able to say that "even if you raised all your own food you would still find it difficult to avoid them."

Several chapters of *Our Daily Poison* are devoted to the controversy over fluoridation of the public water supply. This question is closely argued, with evidence from both sides. The conclusion seems to be that while tests made in two or three cities show that there has been a substantial reduction in dental cavities among children, none of these tests can be regarded as being really complete, nor has serious attention been paid to the other effects which fluorides in the public water supply may produce. Again, the question of the *safe* quantity that may be used comes up. Fluorides are poisons, and sodium fluoride, which it is proposed to use in the treatment of public water, is considerably more poisonous than the calcium fluoride which sometimes occurs naturally in public water resources.

On the question of fluoride "dosage," a sedentary child will drink much less water than an active, athletic child. A "safe" dose for the child who drinks little water might not be safe for the child who drinks a lot more—or, for a diabetic who is obliged to drink large quantities of water.

There is a startling chapter on the use of stilbestrol for fattening poultry and livestock. This is a hormonal material which artificially stimulates growth, adding fatty tissue, but no nutrients. In 1950, some 30,000,000 chickens were being inoculated annually with stilbestrol. A food and drug administrator found it necessary in 1952 to condemn poultry aggregating \$25,000 in value because of improperly inoculated stilbestrol.

The material had not been assimilated by the birds. A mink farmer who had purchased offal containing chicken heads which had been treated with stilbestrol found that his males became sterile from this diet. Commenting on this practice, Dr. F. M. Pottenger, Jr., of Monrovia, Calif., had this to say:

With the present-day trends to hybridize and desex practically everything we get as food, from cattle, hogs, sheep and now our poultry, with our sterile eggs and our cereals without germ, I think we are coming to a problem where, maybe, the use of stilbestrol, in producing the capon, may be as serious for the human being as for the mink, and that it should be thoroughly investigated before the practice is allowed to continue.

There is a very interesting chapter on bread, showing the effects of milling and bleaching flour, and pointing out the many advantages of home-milled, wholewheat flour and home-baked bread. Cosmetics get attention, with reports on the effects of poisons in hair dyes, and on the toxic content of rouges, lipsticks, deodorants, and other materials. So-called "hormone creams" are a particularly dangerous offender, according to Mr. Wickenden's facts. One manicure product, an undercoat for nail polish, caused the nails to drop off, and a depilatory for removing superfluous hair brought the following judgment from a Los Angeles dermatologist:

An indiscriminate application of this preparation to the skin can result in absorption of the poison; a number of cases of blindness, paralysis and other nerve injuries, including death, resulted from its use.

Something should be said about the valuable introduction contributed to Mr. Wickenden's book by Dr. Jonathan Forman, of Worthington, Ohio. Dr. Forman points out that the poisons so extensively in use today act as antagonists to the catalytic action of the enzymes which govern all metabolic processes. He writes:

To illustrate the problem of antagonisms, let us consider vitamins a little more in detail. Besides the anti-vitamin chemicals, there are many chemicals which produce a vitamin deficiency even though the

person may be eating a balanced diet such as that recommended by the Nutrition Committee of the National Research Council. These agents, other than the anti-metabolites, include most of the chemicals with which this book is concerned and may be classified as follows: (a) Those agents which destroy vitamins. (b) Those chemicals which act as poisons by inhibiting the activity of the enzymatic systems. (c) Those chemicals which enhance the development of the opposing enzymes. (d) Those chemicals which cause excessive elimination of vitamins

It is most important . . . to recognize that the damaging effect of the antagonists may not be complete but can still definitely interfere with normal physiological processes. The interference may result in a clinical deficiency which may be so slight that it is not even recognized as a disease but only as an unexplained indisposition. Many millions of people are half sick as a result of these antagonisms.

The thing that becomes evident from a study such as Mr. Wickenden has produced is that a vast ignorance pervades our entire food production and food processing industry. A specific effect is sought, such as the killing of a parasite, or the preservation of a perishable product. When that effect is gained, the Food and Drug Administration has to *prove* that the method of producing it is not harmless, before it can interfere. Often, the subtle side-effects or long-term consequences of what has been done to the food may be almost impossible to demonstrate. Further, tremendous pressures are exerted on inspectors and on those who try to decide what is harmful to the consumer and what is not. The public, confident that it is protected, trusts to printed advertisements and takes a false security in familiar guarantees of "purity" and "quality." But the protection does not exist, the purity is not there, and the confidence in "authority" is misplaced. The burden of arousing the public to more intelligent concern for its health, and the health of children, falls upon a handful of doctors, nutritionists, and health-food people who do what they can to overcome the massive apathy of the "half-sick" millions who do not know what is wrong with them and, most of the time, do not

believe it when they are told. Mr. Wickenden has written a useful and courageous book.