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SCIENCE AND MYTH

IN his introduction to the *Larousse Encyclopedia of Mythology,* Robert Graves begins: "Mythology is the study of whatever religious or heroic legends are so foreign to a student's experience that he cannot believe them to be true." And for this reason, he says, the standard European texts on mythology omit the Biblical narratives, even though they are closely paralleled by many "pagan" myths. The point is of more than passing interest, since the California Board of Education has been asked to rule that the Biblical account of "creation" be given equal treatment in science textbooks used by California school children, along with the scientific version of cosmic and human origins. A San Diego board member, arguing for this requirement, said that the Bible story had never been proven wrong, and that the world gives ample evidence through its design of having had a "creator." Since the Board of Education obviously feels obliged to consider the proposal seriously, despite much criticism from scientific and humanistic quarters, one may assume that this "Biblical narrative," as Robert Graves indicates, is regarded as literal truth by its supporters, and by no means a "myth," even though many similar creation traditions and legends are so classified by modern scholarship. The position, then, can only be: Our myth is credible; others are not.

For one who tries to be a fair-minded citizen, the situation is made difficult by this insistence on one "myth" in preference to all others. It seems clear that the scientific account of beginnings—whether in terms of some kind of cosmic "accident," as cosmologists would have us believe; or of the origin of man, according to the increasingly vague and uncertain doctrine of his descent from some species of ape, ape-man, or "common ancestor"—should be balanced with alternative possibilities, but this can hardly be accomplished simply by inserting in the curriculum a story of what "happened" in the Garden of Eden, as though this allegory could "compete" with the heavy-handed scholarship of modern Darwinism. The California school board cannot be unaware that, in a contest at the level of empirical science, the Bible story has no chance at all. And if, recognizing this, the board should decide upon presentation of the Bible story as a myth, then surely other myths should be included, if only to avoid involving public education in what would amount to favoring a single denomination of religion.

That seems about all that need be said about the controversy in relation to public education. But in the wider context of modern thought, and above the confinements of politics, the fundamental issue remains. Two broad tendencies may be identified. One is well described by Northrop Frye in *The Stubborn Structure:*

> The present tendency to "demythologizing" in religion means, first, that beliefs which are contradicted by the plainest evidence of history or science, such as the quasi-historical fantasies of the Anglo-Israelites or the "fundamentalism" that translates the hymn of creation in Genesis into a textbook of geology, are intellectually wrong. Consequently, because of the way that such beliefs shut doors in the mind on anything, they are in the long run morally wrong as well. In all areas of knowledge we distinguish between observed fact, which depends on sense experience, from the context of the fact, which depends not so much on reason as on a sense of convention about what is, at the time, felt to be reasonable. Truth in religion is increasingly felt to be something that conforms to scientific and scholarly conceptions of truth, instead of being thought to reside primarily in the miraculous, or in the transcendence of other conventions of truth.
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> Demythologizing is a very inappropriate, not to say foolish, term for what is actually mythologizing, as any withdrawal of religious structures from ontological assertion is bound to transform them into

> myths. This process has now reached a crucial stage. As the principle of objectivity as the guide to truth continues to make its way, certain types of conceptions, which do not lend themselves to observation, tend to become unusable.

But Frye is convinced, along with numerous other modern thinkers, that human beings live by myth, so that to demythologize religion is to make it increasingly unacceptable, until a point is reached where men adapt whatever is available in the way of "knowledge" to make new myths to support their existence. In times of trouble, these synthetic myths prove sadly inadequate, and then there is determined criticism of the idea of knowledge from which they were derived. Frye says:

> One reason why our myth of concern is not as well unified as that of the Middle Ages is that all myths of concern are anthropocentric in perspective, and physical science, at least, refuses to have anything to do with such a perspective. . . . Naturally, the main outlines of the scientific picture of the world are part of our general culture picture, and naturally, too, any broad and important scientific hypothesis, such as evolution or relativity, soon filters down into the myth of concern. But scientific hypotheses enter the myth of concern, not as themselves, but as parallel or translated forms of themselves. An immense number of conceptions in modern thought owe their existence to the biological theory of evolution. But social Darwinism, the conception of progress, the philosophies of Bergson and Shaw, and the like, are not applications of the *same* hypothesis in other fields: they are the mythical analogies to that hypothesis. By the time they have worked their way down to stock response, as when slums are built over park and because "you can't stop progress," even the sense of analogy gets hazy.

This is a far cry from the ancient role of myths, which, as Robert Graves suggests, was to answer questions such as "Who made the world? How will it end? Who was the first man? Where do souls go after death?" And different, too, from what William Irwin Thompson says in *At the Edge of History:* "In a religious society, myth tells the people who they are, and where they come from; to change the myth is to run the risk of becoming lost in the most profound ontological sense." Northrop Frye is here dealing with those fragmentary myths which men make to take the place of the religious myths they have forgotten, or rejected because they had been made unbelievable, and these substitute myths, being inadequate, are indeed the cause of the modern feeling of being lost in a "profound ontological sense."

That is one of the two broad tendencies we need to examine. The other is the criticism of scientific "objectivity" coming from writers such as Theodore Roszak, Joyce Carol Oates, and Eugene S. Schwartz. Speaking of the devotion to "facts" of the scientific inquirer, Mr. Schwartz writes in *Overskill:*

> The enthronement of "facts" was self-serving, for "facts" were the only reality that science could manipulate after it had excised philosophy' morality, ethics, and all considerations of quality from its ken of observation. "Facts" were selected for scientific scrutiny only if they were amenable to observation and measurement, if they could be placed within an orderly structure.
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> In this scheme, knowledge became, as Norbert Wiener has wisely observed, the interpretation for man's convenience of a system that has not been designed for man's convenience. In short, science selected as "facts" those phenomena that accorded with the intuitive faith in natural order and were reducible to what Whitehead has termed the tenets of scientific materialism. In a reversal of Platonic dualism, science termed phenomena real and ideas and qualities unreal. Because of its narrow selection of "facts," the scheme was successful because just those areas were selected which were amenable to, and appeared to require, investigation.
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> The laws of nature that were promulgated may not be so much properties of nature as properties of man who describes and classifies phenomena.

Criticism of this sort opens the way for a revival of myth. But there are obstacles, or psychological blocks, in addition to the lingering influence of the demythologizing campaign carried on by the scientifically minded. Roszak has a long chapter in *Where the Wasteland Ends* on the desacralization of Nature by the Protestant Reformation. Its thrust, he says, has been "to

*super*natural—something

Roszak continues:

> From Judaism, Christianity inherited a
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> way that contrasts sharply with the mythopoeic
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> the heroes and prodigies of its tradition in a worldly chronology. Even the stories of creation and of
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> that sense of being located in the "dream-time long ago" which is the necessary dimension of myth. . . .
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> *really* happens—in a way that reduces myth to fiction
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> Myths, on the other hand, are like the motifs of dreams. They elude the logic of contradiction; their transhistorical, leaving no imprint on time. One cannot ask of them "when" or "where,"
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> narrative surfaces of myths are unimportant the truth of mythical insight is not a matter of fact, but of
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> forms. . . . The meaning of myths lies in the vision of life and nature they hold at their core. Either one re-
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> message—in which case the myth is bound to become an empty literal shell, a fiction, a lie; it loses its
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> For Christians this inherited prejudice in favor of historicity became the very foundation of their
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> the truth of the suffering and resurrected savior, Christianity alone could claim historical validity for
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> one time, at one place, in one human personality. That was what made Christ and condemned Mithra, Osiris, the Gnostic Primal Man to unreality. Christ belonged to history; his rivals were myths.

As one thinks about these things, it begins to

the dogma that only in "objective fact" lies access to truth or certainty, ought to mean the

of perennial insight, the container of truths that are not eroded by time. And the idea that one

myth, or miss its meaning—or miss the subtlety,

too, that great myths have several levels of

learning and human growth that are a part of present-day humanistic psychology.

nurtured by the vision of myths. No great civilization ever rose to heights without them.

civilizations whose mythic literature is most available to us. But the British had their King

week's Review struggled mightily to inspire their countrymen with the images of past mythic

oppressions of a dark period in their history. In *A*
(London: Macmillan, 1937), John Eglinton tells of George Russell's mythic

tried to use it as means to the recovery of man's original high estate, both for himself and others:

> "Aeons," or the myths of the Titans and rebel angels, were a record of actual happenings in the abysses of
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> the same charge might be made against any mind which accepts literally any transcendental account of
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> poetry or myth; but what is a myth? Or in what sense is a myth like one of Plato's "true"? Is it not a
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> history and science are impotent, essential happenings are shadowed forth? In this way the first
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> *Origin of Species*, and Plato's myth of the Cave a
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> Russell's mind was a natural habitant of that region of thought in which myths are "true."

dreamy visions interfere with his effectiveness in practical matters? On the contrary, it becomes

batteries for almost endless labors as editor of the *Irish Homestead*,
years, writing and lecturing on the need for rural and agricultural regeneration in Ireland.

In myths are the keys to the common elements and major confrontations of human experience. There is a Jason who seeks for the Golden Fleece in every one of us, and a Siegfried who must find his treasure. A Prometheus lies sleeping in all who feel sympathy for human ignorance and lethargy, and an Arjuna, too, who longs for counsel when a man feels that the time has come to assume control of his life and destiny. The myths are about the Being-needs of all humans, and in this capacity for universal application they become the generalizations which apply to the subjective side of reality. Their greatness lies in their fullness, their richness, their resonances with the many overtones and undertones of the psychic and moral life.

The objective side of reality has also its abstractions, by which we presume, as Mr. Schwartz says, to "define" the external world. These are the abstractions of science, which become increasingly mathematical as science—or any of its branches—matures. The abstractions of science—by intent and definition—exclude all subjective reality, and are selectively chosen by reason of what can be done with them. They are plainly reductive in character; indeed, that is their distinction and their claim to reliability. The matter is exactly as Ortega put it more than thirty years ago in *History as a System:*

> Scientific truth is characterized by its exactness and the certainty of its predictions. But these admirable qualities are contrived by science at the cost of remaining on a plane of secondary problems, leaving intact the ultimate and decisive questions. Of this renunciation it makes its essential virtue, and for it, if for nought else, it deserves praise. Yet science is but a small part of the human mind and organism. Where it stops, man does not stop. If the physicist detains, at the point where his method ends, the hand with which he delineates the facts, the human being behind each physicist prolongs the line thus begun and carries it on to its termination, as an eye beholding an arch in ruins will of itself complete the missing airy curve.
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> It is the task of physics to ascertain for each fact occurring here and now its principle, that is to say the preceding fact that causes it. But this principle in its turn has a principle, and so down to an original first principle. The physicist refrains from searching for first principles, and he does well. But, as I said, the man lodged in each physicist does not resign himself. Whether he likes it or not, his mind is drawn towards the last enigmatic cause of the universe. And it is natural that it should be thus. For living means dealing with the world, turning to it, acting in it, being occupied with it. That is why man is practically unable, for psychological reasons, to do without an all-round knowledge of the world, without an integral idea of the universe. Crude or refined, with our consent or without it, such a trans-scientific picture of the world will settle in the mind of each of us, ruling our lives more effectively than scientific truth.

This is the reality, indeed the *fact,* of the matter. This is what Northrop Frye means when he says that science cannot enter the lives of men except in the form of myth, for myth deals with those 'last dramatic questions," as Ortega calls them, to which we cannot turn a deaf ear if we would go on living. What are those questions:

> Where does the world come from, and whither is it going? Which is the supreme power of the cosmos, what the essential meaning of life? We cannot breathe confined to a realm of secondary and intermediate themes. We need a comprehensive perspective, foreground and background, not a maimed scenery, a horizon stripped of the lure of infinite distances. Without the aid of cardinal points we are liable to lose our bearings. The assurance that we have found no means of answering last questions is no valid excuse for callousness toward them. The more deeply should we feel, down to the roots of our being, their pressure and their sting. Whose hunger has ever been stilled with the knowledge that he could not eat? . . .
>
> We are given no escape from last questions. In one fashion or another they are in us, whether we like it or not. Scientific truth is exact, but it is incomplete and penultimate and of necessity embedded in another ultimate, though inexact truth which I see no objection in calling a myth. Scientific truth floats in a medium of mythology; but science taken as a whole, is it not also a myth, the admirable myth of modern Europe?

Thus Ortega in 1941. He would probably have thought it less admirable today, but except

for this qualification what he says stands beyond dispute.

Could we not have a single myth, one that would contain and order all the others? Why can't we, in scientize" the pursuit of subjective truth? Are there not pure generalizations that can

artists are capable of endless "insights," and if myths have in them truths which demonstrate their

further generalization that can be made? Or do words fail for a task of this sort?

the science of the contents of myth. But it seems unlikely that there can be any sudden passage

some system of intellectual correspondences. Perhaps it can be done, but there is always the

about the nature of things for knowledge, and mythic forms of expression are a great protection

knew. Yet there is the possibility that science, taken in Plato's idea of its usefulness, has already

reality for abstract conceptions. This could mean that we are now ready to render the myths we

concepts of transcendental metaphysics. Leibniz

REVIEW
HOW TO READ A BOOK

THE SENSES OF WALDEN, by Stanley Cavell (Viking, 1970, $5.95), fortunately, has no resemblance to the volume by Mortimer Adler whose title we have borrowed, but is rather an example of a musing, reflective intelligence at work over Thoreau's classic. Reading Mr. Cavell is likely to bring to most of those who have "read" *Walden* at least a little embarrassment, since he discloses how much it is possible to miss.

Walden, Cavell shows, was addressed to the meaning and reform of life and language. Yet Thoreau does not exhort. He pursues his meditations as if only for his own benefit, although he thinks he might wake up some of his neighbors.

Early in the book the author explains his interest in *Walden.*

> Study of *Walden* would perhaps not have become such an obsession with me had it not presented itself as a response to questions with which I was already obsessed: Why has America never expressed itself philosophically? Or has it—in the metaphysical riot of its greatest literature? Has the impulse to philosophical speculation been absorbed, or exhausted, by speculation in territory, as in such thoughts as Manifest Destiny? Or are such questions not really intelligible? They are at any rate, disturbingly like the questions that were asked about American literature before it established itself. In re-reading *Walden,* twenty years after first reading it, I seemed to find a book of sufficient intellectual scope and consistency to have established or inspired a tradition of thinking. One reason it did not is that American culture has never really believed in its capacity to produce anything of permanent value—except itself.

Thoreau tells in his second paragraph that he wrote his book because the people of Concord persisted in asking him questions about his mode of life, what he had to eat, and whether he became lonely. *Walden* became his answer, and its purpose was to stir similar inquiries in others about their own lives. Thoreau is thus a Socrates who wants to know why other men live as they do, and this is his way of provoking them to find their own answers. *Walden* is spoken of as a "nature" book, but this is far too superficial a disposition. It is a man's search of himself with a competence that pretends to no competence, but simply goes from question to question until he reaches the very bottom of himself. It was, Thoreau suggests, "moulting season" for him, when he would go by himself, as the birds do. Nature is one vast analogue of meaning for Thoreau, and his every encounter in the woods becomes a fable with content in it for men. But while the creatures of the field and the woods are directed by universal rhythms to obey the necessities of nature, human beings must decide for themselves when their moulting season has come—when a nakedness is right and necessary. Mr. Cavell writes:

> Neither men nor nature told him *when* to go, when it was upon him; by accident it began on a Fourth of July. Hence he can say, "I left the woods for as good a reason as I went there. Perhaps it seemed to me that I had several more lives to live, and could not spare any more time for that one" (XVII, 4). Of course this is fair warning to those of his readers who will be attracted to his life that they will not find it at his Walden, but must work out their own. And he is gently chiding those of his townsmen who have had their "second birth and peculiar religious experience" (III, II) and thereupon imagine that two are enough, or something special. But his "several more lives to live" leaves his plans indefinite. And that is an essential fact about them: "We should live quite laxly and undefined in front. . . . The words which express our faith and piety are not definite" (XVIII, 6). What is definite, or what is to be defined, is that he has lived one life, a whole life, at Walden; that is, that he *spent* it there, expended it, the whole of it. That was the point of the experiment, not to learn that life at Walden was marvelous, but to learn to leave it. It will make for more crises. One earns one's life in spending it; only so does one save it. This is the riddle, or you may say the paradox, the book proposes. [Roman numerals indicate chapters, arabic the paragraph.]

What happened at Walden?

Walden's phenomenological description of finding the self, or the faith of it, is one of trailing and recovery. This is the writer's interpretation of the

> injunction to know thyself. His descriptions emphasize that this is a continuous *activity,* not something we may think of as an intellectual preoccupation. It is *placing* ourselves in the world. That you do not know beforehand what you will find is the reason the quest is an experiment or an exploration. The most characteristic of the writer's reflexive descriptions is that of finding himself in some attitude or locale: "I found myself suddenly neighbor to the birds" (II, 9); "I found myself suddenly in the shadow of a cloud" (X, 3); "I found repeatedly, of late years, that I cannot fish without falling a little in self-respect" (XI, 5), "I find myself beginning with the letters *gl"* (IV, 19) . The place you will come to may be black (XVIII, 2), something you would disown; but if you have found yourself there, that is so far home; you will either domesticate that, naturalize yourself there, or you will recover nothing.

Thoreau does not string out long passages intended for the instruction of the reader. He waits, watchfully, in the woods. He listens for unbidden resonances. He has the alertness of the stripped-down man, Ortega's shipwrecked man, but with this difference, that the spur of desperation is not needed by Thoreau. He chose the mood of clear-seeing; it was not forced upon him by punitive circumstances. He waits, hoping that the reader will wait with him. And he tries to clear away the rubbish of misconceived dreams:

> Everyone is saying, and anyone can hear, that this is the new world; that we are the new men, that the earth is to be born again; that the past is to be cast off like a skin; that we must learn from children to see again that every day is the first day of the world; that America is Eden. So how can a word get through whose burden is that we do not understand a word of all this? Or rather, that the way in which we understand it is insane, and we are trying again to buy and bully our way into heaven; that we have failed; that the present is a task and a discovery, not a period of America's privileged history; that we are not free, not whole, and not new, and we know this and are on a downward path of despair because of it; and that for the child to grow he requires family and familiarity, but for a grownup to grow he requires strangeness and transformation, i.e., birth?

Thoreau is out to purify language, dispel rumors, crack dogmas. He speaks often of what men suppose to be the constraints of circumstance. Men are *not* constrained to do what they do, but are betrayed by habit, custom, by what they think is expected of them. "One young man of my acquaintance," Thoreau remarks, "who has inherited some acres, told me that he thought he should live as I did, *if he had the means."* But to live as he did, Thoreau had put away his means. So men deceive themselves as to the true means and "necessaries" of life. They live as indeed they choose, but they choose without thinking. We exercise ourselves about Negro slavery, calling it a crime, as indeed it is, but why remain so complacently accepting of other slaveries? Thoreau wrote:

> It is hard to have a Southern overseer; it is worse to have a Northern one; but worst of all when you are a slave-driver yourself. Talk of a divinity in man! Look at the teamster on the highway, wending to market by day or night; does any divinity stir within him? His highest duty to fodder and water his horses! What is his destiny compared with the shipping interests? Does he not drive for Squire Make-a-stir? How godlike, how immortal, is he? See how he cowers and sneaks, how vaguely all the day he fears, not being immortal and divine, but the slave and prisoner of his own opinion of himself, a fame won by his own deeds. Public opinion is a weak tyrant compared with our own private opinion. What a man thinks of himself, that it is which determines, or rather indicates, his fate. Self-emancipation even in the West Indian provinces of the fancy and imagination—what Wilberforce is there to bring that about? Think, also, of the ladies of the land weaving toilet cushions against the last day, not to betray too green an interest in their fates! As if you could kill time without injuring eternity.

From the misuse of lives grows the misuse of language, until the original meanings of many words are all but lost. There is a quiet satire in Thoreau's debunking of the pompous seriousness of our economic language. The meanings behind the meanings of our words rebuke both our language and our lives, the lives that have vulgarized the language. Thoreau works on the restoration of language by showing its corruption. Mr. Cavell writes:

> In the opening fifty pages of *Walden* there are a dozen instances of modifications like "so-called" or "what is called." For example: "By a seeming fate, commonly called necessity . . ." (I, 5); "None can be an impartial or wise observer of human life but from the vantage of what *we* should call voluntary poverty" (I, 19); "the cost of a thing is the amount of what I will call life which is required to be exchanged for it" (I, 45); "The religion and civilization which are barbaric and heathenish built splendid temples; but what you might call Christianity does not" (I, 78). The meaning of the modification is clear in each context, and hardly surprising: What is called necessary is commonly a myth; what we call voluntary poverty may in fact be "simplicity, independence, magnanimity, and trust"; I will call your labor life, for the sake of argument and so as not to raise too many questions at once; what you might call Christianity, if you were accurate to its own criteria, does not exist or is in any case not what you do call Christianity. The point of modification is to suggest that our words are our calls or claims upon the objects and contexts of our world; they show how we count phenomena, what counts for us. The point is to get us to withhold a word, to hold ourselves before it, so that we may assess our allegiance to it, to the criteria in terms of which we apply it. Our faithfulness to our language repeats our faithlessness to all our shared commitments.

A respect for language is repeated by Mr. Cavell at the end of the book, where, drawing attention to the parallels between *Walden* and the *Bhagavad-Gita,* even to having eighteen chapters, he notices Thoreau's way of speaking of "unattachment," which turns on the concept of "interestedness." Lack of understanding of an unselfish interest, Mr. Cavell suggests, is behind the common inability to use the term "disinterested" correctly. The idea has too much subtlety, apparently, for an acquisitive, objectivity-demanding society, which wants only one kind of "interest," so "disinterested" is corrupted into meaning simply "uninterested."

There is much more in Mr. Cavell's study of *Walden* than we have been able to suggest. With hardly an exception, admirers of Thoreau will find several dimensions added to their hero by a reading of this book.

COMMENTARY
"THE DESPERATE PARTY"

IN *Walden,* Thoreau identifies himself as the author of "Civil Disobedience." Mr. Cavell (see Review) calls the book a tract on "education for membership in the polls." Thoreau went to the woods to search out himself, but it was also to withdraw for a time from society—a society which permitted slavery. "I might," he said, "have resisted forcibly with more or less effect, might have run amok against society; but I preferred that society should run 'amok' against me, it being the desperate party." He found the woods to be a "more free and honorable ground," sought also by the fugitive slave, the Mexican prisoner on parole, and the unwanted Indian. Mr. Cavell remarks: "It is not the first time in our literature, and it will not be the last, in which society is viewed as a prison." He adds that the path out of the prison described by Thoreau "is as arduous as the one the *Republic* requires of philosophers." After a brief comparison of Thoreau with Rousseau, Cavell continues:

> I do not wish to impose a political theory upon the text of *Walden.* On the contrary, if the guiding question of political theory is "Why ought I to obey the state?" then Thoreau's response can be said to reject the question and the subject. The state is not to be obeyed but, at best, to be abided. It is not to be listened to, but watched. Why ought I to abide the state? Because "it is a great evil to make a stir about it." A government, however, is capable of greater evil, "when its tyranny or its inefficiency are great and unendurable" (CD, 8). How do you know when this point has been reached? Here the concept of conscience arises, upon which secular, or anyway empirical philosophy has come to grief: what can conscience be other than some kind of feeling, of its essence private, a study for psychologists ?—As though the "science," that is to say knowledge, that the word "conscience" emphasizes can at most register a lingering superstition. *Walden,* in its emphasis upon listening and answering, outlines an epistemology of conscience.

This seems a fine account of the book. Since Mr. Cavell's study came in for review, it has operated something like a magnet: we keep going back to it, reading over what the author says, and then searching out in Thoreau the passage he is considering. The *Senses of Walden* shows how simply—simply from one point of view—a writer can, if he will, deal with the profundities of philosophy.

CHILDREN
. . . and Ourselves
A GOOD STORY; ANCIENT SCHOOLS

WHEN a really good children's book comes along, there is apparently a danger that the reviewer will forget it is a children's book and enjoy the story for itself, without making notes. That is what happened with Ann Nolan Clark's latest story, *Hoofprint on the Wind* (Viking, 1972, $5.50), which is about a ten-year-old boy who lives on an island off the west coast of Ireland. It is a mystery story in a way, telling of this boy's dream of a Connemara pony, and how it was realized. Mrs. Clark visited the island, absorbed the lore and speech of the people, and her book slowly makes the austerely happy existence of the islanders come alive for the reader.

But most of all one feels the reality of the family relationships, in which children share with their parents the making of a common life under severe and almost inhospitable conditions. The islanders have not only to grow their food, but to "make" the soil for their gardens out of a mix of sand and seaweed. There is little natural earth on the island, which is mostly a great rock jutting out of the ocean. The warm linkages and affections which unite the generations are likely to make an American reader think fondly of the good old frontier days when families struggled together to survive, and the "generation gap" belonged to an unimagined future. The story opens with Patcheen, son of Patch, the horse trader, climbing on a steep cliff to collect seagull eggs to bring to his mother for the family to eat. As the story develops, we learn that the boy's father and two of his older brothers—Patcheen is the youngest of four—were lost at sea when they went on a voyage to the mainland to dig some turf for fuel, since their supply was running low. A sudden storm came up and their temperamental curragh—a canvas-covered boat sometimes called a coracle—must have capsized, since they never returned. So Patcheen and his thirteen-year-old brother Sean became the "men" of the family, doing the fishing, gardening, milking, and other chores that kept them and their mother supplied with food. They also cared for the sheep from whose wool their mother made their clothes. Sean proves himself a natural gardener, while Patcheen shows instinctive knowledge of horses, the kind his father had, and the story grows with this potentiality in the boy. How it comes out is the "mystery" part. An important event in its unfolding is the Galway fair, where the two boys are taken by the skipper of the *Island Queen*, a small steamer which carried the larger animals—cows, horses, and pigs—to the fair. Fair day was an exciting time for the islanders. Women would send butter and eggs, weavers any wool they had not used, and blankets and extra garments or shawls they had woven. Sometimes lambs that could be spared were sold, and boys brought calves they had raised. Sean had potatoes from his garden for sale.

The steamer anchored off-shore and the horses, cows, and pigs had to be ferried out to be loaded on board by a sling from a crane. Getting the animals into the curraghs was a test of endurance and humor:

> To one side, where they would miss nothing, there was a semicircle of very old women sitting on the creels they had carried, delightedly and noisily taking in everything that was happening.
>
> When a pig got loose or a cow ran amuck or a horse pitched a young rider to the hard sand-packed shore or a headstrong calf decided he was boss instead of the boy who raised him, they were overjoyed and had a special comment for each misadventure and its unfortunate victim.
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> To the man whose cow ran amuck:
>
> "Timmie, me lad, does your wife not be tellin ye that in all good faith the cow be spryer than ye be? 'Tis playing with death, ye be, trying to lead her."
>
> To the man whose horse pitched him:
>
> " 'Tis a chair ye should be sitting, Mike, me fine fellow, and not the back of a horse, nag that the poor beast is after being."

> The men laughed and retorted, giving back to the Old Ones as good as they gave. But for the boys, trying to herd squealing pigs and bawling calves, the comments and advice embarrassed them and added to the almost impossible task of getting their reluctant animals to the curraghs.
>
> Such remarks as, "Laddie boy, does your mother not be telling ye which one of ye should be leading?" and, "If your dear pigs would sell by their squeals instead of their weight, 'tis money by the hatful ye'll be making in Galway."

If there are still readers of this department not familiar with Ann Nolan Clark, we suggest preliminary attention to her *Journey to the People* (Viking, 1969), written for adults, which tells about her life as a teacher, mostly of Indian children, in North and South America. *The Secret of the Andes,* recently reviewed here at length, is her best-known story for children.

The third chapter of M. L. Clarke's *Higher Education in the Ancient World* (University of New Mexico Press, 1971), titled "Philosophical Teaching," while telling little of *what* was taught, gives the reader a fair idea of the continuity of the Platonic and Neoplatonic schools. Plato, Mr. Clarke relates, was the first of the Greek thinkers to establish a permanent center for philosophical instruction. (There was of course Pythagoras before him.) Plato acquired a property near the Academy, the name of one of the gymnasia on the outskirts of Athens, and while it was called a garden, there must also have been a house, since Plato lived there. There is no record of the transmission of the property in his will, but, as Clarke says, "he could hardly have spent forty years in teaching without giving some thought to the future of the school." Actually, the school itself lasted some nine hundred years. Plato appointed his nephew, Speusippus, to succeed him, and while Speusippus taught but did not live there, "his two successors Xenocrates and Polemo occupied Plato's old home, so that, however the property was conveyed, it belonged in effect to the school." However, the school did not occupy the Academy premises throughout the 900 years, since political troubles seem to have made this impossible.

Plato himself gave only one public lecture, according to Mr. Clarke. He spoke on the Good, and the record of what he said is called "enigmatic."

> His teaching appears to have been mainly of an informal nature; he was director of studies rather than the lecturer. He would offer advice and criticism. In particular he suggested problems in mathematics. We know that one of the problems which he set was to determine what uniform and ordered notions would account for the apparent movement of the planets, and it was to solve this problem that Eudoxus worked out his theory of concentric spheres.

There is not much, here, to suggest the content of most of the dialogues, but Mr. Clarke adds: "The Academy sent out would-be philosopher-kings, advisers and constitution-makers."

In later years, the Platonic school absorbed the Pythagoreans, and the life of Apollonius of Tyana is said to give "a fairly reliable picture of the Pythagorean life under the Empire." Philosophy declined during the first two centuries A.D., but gained a new lease of life when Plotinus, in the middle of the third century, came to Rome after having studied under Ammonius Saccas in Alexandria. After Plotinus died, Porphyry, his pupil, returned to Rome to give public lectures, succeeding, Mr. Clarke says, "in popularizing his master's doctrines and making them intelligible to the ordinary listener." Meanwhile, in Syria, Iamblichus, with whom Porphyry corresponded, taught the Neoplatonic doctrines in company with mystical ideas and conceptions of magic. When Julian (the Apostate) became emperor, he attempted to revive Neoplatonic teachings in Rome, but his effort died with him. The main centers of Neoplatonism were then Athens and Alexandria. The school in Athens had long since ceased to occupy the Academy, and in Proclus' time the Neoplatonists had quarters in a house in the city. The school, Mr. Clarke says, "was conscious of its long history going back to Plato."

No fees were charged, and Olympiodorus said that this was a tradition originating with Plato. The school had revenues resulting from legacies. In 529, Justinian drove the philosophers from Rome and Athens. The Alexandrian school is said to have declined after the time of Hierocles, who was the teacher there. The distinguished girl philosopher, a Neoplatonic teacher, Hypatia, had been murdered by a horde of fanatical Christians in 414.

Mr. Clarke has this informative passage on the development of Neoplatonic thought:

> Plotinus based his teaching on Plato and Aristotle, and no doubt he thought of himself as their interpreter rather than as an original thinker. He presumably read their works with his pupils, and we know that they studied commentaries by other Platonists and Aristotelians. He examined the problems arising from the interpretation of certain passages and it can be assumed that the substance of his discourses on these problems is preserved in the Enneads. He was not dogmatic in his teaching; he encouraged questions, and engaged in friendly discussion rather than disputation. When Porphyry first attended the school he wrote a criticism of Plotinus' views; Amelius was made to read it and told that he must solve Porphyry's difficulties. Amelius then wrote a lengthy answer, to which Porphyry replied. There followed a reply from Amelius, after which Porphyry at last understood Plotinus' views, was convinced by them and wrote a palinode which he recited in the school. Once three days were spent in the discussion of a question by Porphyry, much to the annoyance of a hearer who had been expecting a connected discourse by the master; "but," said Plotinus, "if Porphyry did not ask questions, I should have nothing to say which could be written down."

FRONTIERS

Polanyi and Plato

IN the *Phaedo,* Socrates relates to the friends who have gathered about him just before the hour of his death an account of his early search for the truth about causation. Having heard that Anaxagoras had asserted that mind produces "order and is the cause of everything," Socrates found himself in eager agreement and obtained the books of Anaxagoras to study him further. To his great disappointment, he discovered that in giving the explanation for particular actions, Anaxagoras turned to "mechanical" causes, leaving Mind a mere *deus ex machina.* Socrates said:

> It seemed to me that he was just about as inconsistent as if someone were to say, The cause of everything Socrates does is mind—and then, in trying to account for my several actions, said first that the reason why I am lying here now is that my body is composed of bones and sinews, and that the bones are rigid and separated at the joints, but the sinews are capable of contraction and relaxation, and form an envelope for the bones with the help of the flesh and skin, the latter holding all together, and since the bones move freely in the joints the sinews by relaxing and contracting enable me somehow to bend my limbs, and that is the cause of my sitting here in a bent position. Or again, if he tried to account in the same way for my conversing with you, adducing causes such as sound and air and hearing and a thousand others, and never troubled to mention the real reasons, which are that since Athens has thought it better to condemn me, therefore I for my part have thought it better to sit here, and more right to stay and submit to whatever penalty she orders. Because, by dog, I fancy that these sinews and bones would have been in the neighborhood of Megara and Boeotia long ago—impelled by a conviction of what is best!—if I did not think that it was more right and honorable to submit to whatever penalty my country orders rather than to take to my heels and run away. But to call things like that causes is too absurd. If it were said that without such bones and sinews and all the rest of them I should not be able to do what I think is right, it would be true. But to say that it is because of them that I do what I am doing, and not through choice of what is best—although my actions are controlled by mind—would be a very lax and inaccurate form of expression. Fancy being unable to distinguish between the cause of a thing and the condition without which it could not be a cause! It is this latter, as it seems to me, that most people, groping in the dark, call a cause—attaching to it a name to which it has no right.

In an article, "Genius in Science," in *Encounter* for January, 1972, Michael Polanyi, in discussing the two sides of scientific work—the intuitive inspiration leading to a discovery and the endless labors to verify it by observation or experiment—asks:

> How can these two aspects of genius hang together? Is there any hard work which will induce an inspiration to visit us? How can we possibly conjure up an inspiration without knowing from what corner it may come? And since it is ourselves who shall eventually produce the inspiration, how can it come to us as a surprise?

In his answer to this question, Polanyi points out, first, that this is precisely what happens in scientific discovery—the mix of vision with "infinite pains." He elaborates with a biological analogy which makes essentially the same point as that made by Socrates in the *Phaedo:*

> The solution can be found on a biological level, if we identify inspiration with "spontaneous integration" and look out for the effort that moves such integration. Suppose I move an arm to reach for an object: my intention sets in motion a complex integration that carries out my purpose. My intention is about something that does not yet exist, in other words it is a project, a project conceived by my imagination. So it seems that it is the imagination that induces a muscular integration to implement a project that I form in my imagination.
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> Could we say that this integration is "spontaneous"? I think that in an important sense we can call it spontaneous, for we have no direct control over it. Suppose a physiologist were to demonstrate to us all the muscular operations by which we have carried out our action, we would be amazed at the wonderful mechanism that we have contrived in achieving our project. We would find that we had done something that profoundly surprises us.
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> This exemplifies a principle that controls all our deliberate bodily actions. Our imagination, thrusting towards a desired result, induces in us an integration of parts over which we have no direct control. We do

> not *perform* this integration: we *cause it to happen.* The effort of our imagination evokes its own implementation.
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> And the way we evoke a desired event by the action of our body offers in a nutshell a solution of the paradox of genius. It suggests that inspiration is evoked by the labours of the thrusting imagination and that it is this kind of imaginative labour that evokes the new ideas by which scientific discoveries are made.

Polanyi goes on to develop this conception of the integrative power of the mind or imagination by showing its function in other ways—in affording a world-view, from which are taken "leads" for further scientific investigations. He points to the comparative inexactness of scientific evidence, on which scientists are nonetheless compelled to rely for their verifications, and discusses the priority, in various ways, of the theory over the facts, even though the facts are of course an essential part of science. He recalls Einstein's reply to Werner Heisenberg, who had said that he was going to "go back from Niels Bohr's theory to quantities that could really be observed." The truth, Einstein said, was the other way around: "Whether you can observe a thing or not depends on the theory which you use. It is the theory which decides what can be observed." The significance of this view of science is suggested at the end of Polanyi's article, where he says:

> The machinery of genius, which I have described, is at work all the way from the start to the finish of an enquiry. And once we have recognised this mechanism we can see that we are ourselves the ultimate masters of its workings. Exactitude is recognised then to be always a matter of degree and ceases to be an all-surpassing ideal. The supremacy of the exact sciences is neglected and psychology, sociology, and the humanities are set free from the vain and misleading efforts of emulating mathematical physics.

Polanyi is really advocating a Platonic reform in scientific epistemology, as his several books make clear. The moral qualities of the investigator are an essential part of his work, shaping its direction and conclusion. And this is Plato's conception, also, although in the *Phaedo*, Socrates goes on to develop his noëtic idea of causation into a proof of the immortality of the soul, which he begins to expound by saying that things have their quality from participation in the Ideal Forms, to which the understanding of mind and soul may be turned, although they are inaccessible to the senses. But even here, in respect to the soul's knowledge or wisdom, as taught by Plato, Polanyi has something to say which parallels the concern of Socrates, who feared that too great a preoccupation with sense objects and physical causes would blind his soul's sight altogether. "So I decided," Socrates said, "that I must have recourse to theories, and use them in trying to discover the truth about things." Polanyi, in *The Tacit Dimension*, writes at some length about the dangers of an "unbridled lucidity," by which he means so close an attention to the particulars of a thing that its larger meaning, once intuitively apprehended, is lost or forgotten. For in science as in all else, what is sought by research or investigation is first a *conception:*

> For to see a problem is to see something that is hidden. It is to have an intimation of the coherence of hitherto uncomprehended particulars. . . . All this is a commonplace, we take it for granted, without noticing the clash of self-contradiction entailed in it. Yet Plato has pointed out this contradiction in the *Meno.* He says that to search for the solution of a problem is an absurdity; for either you know what you are looking for, and then there is no problem; or you do not know what you are looking for, and then you cannot expect to find anything.
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> The solution which Plato offered for this paradox was that all discovery is a remembering of past lives. This explanation has hardly ever been accepted, but neither has any other solution been offered for avoiding the contradiction.