Suddenly the reader comes face to face with the last two chapters, of naivest and stalest preachment, based on the fantastic idea that my values are everybody's values, and woe to them who reject, modify, or employ them differently. To take the major issue considered: The author assumes that all war is evil, has been so, and should be for everybody, at all times. Yet, one may well ask, could the Jews in the Warsaw Ghetto possibly have thought so when they preferred death on the streets to death in gas chambers? Others to whom Hitler was not the same menace might well have declared—Better Nazi than Dead. Still others might have wished to say so but chose not to. None of these real situations are taken into account. There is only the dogmatic verdict, uttered not in the name of an absolute God or in the spirit of "We hold these truths . . ." but in the name of Lillian Lieber's final decision upon what is clearly obvious, inevitable, and mandatory. The upshot of her effort is the moral that no one who fails to see the variable of human values and goals should play around with equations which necessarily implicate such unknowns.

MARK GRAUBARD
Natural Science, Interdisciplinary Studies, University of Minnesota

Men and Animals

The World of Animals. A treasury of lore, legend, and literature by great writers and naturalists from the 5th century B.C. to the present. Joseph Wood Krutch, Ed. Simon and Schuster, New York, 1961. 508 pp. Illus. $10.

Discovery: Great Moments in the Lives of Outstanding Naturalists. John K. Terres, Ed. Lippincott, Philadelphia, Pa., 1961. xiii + 338 pp. $6.50.

Both of these anthologies invite the reader to pick them up, savor a short chapter, and set them aside to mull over the significance of the sample. Yet the ideas back of the books are poles apart.

For *The World of Animals*, J. W. Krutch dipped into his vast experience among the published writings of past and modern authors and picked out 120 selections for introduction under general sections entitled Profiles and Portraits, Hunters and Sportsmen, The Wide Wide World, Cruelty and Fellow Feeling, Legends, Fantasies, and Fictions, From Aristotle to Darwin to ?, Destruction and Conservation, and Head and Heart. In section after section, through intriguing prefatory notes and the choice and sequence of selections, this handsome treasury of writings traces the history of ideas from antiquity to the present. Woodcuts, prints, and paintings decorate the book and show graphically how men have regarded animals over the centuries. Readers will recognize many of their own favorites among the selections, and miss some too. The unfamiliar pieces among Krutch's curiosa are sure to delight, for they reflect his wide interests and informed sympathies.

For *Discovery*, John Terres went exploring. He invited 40 distinguished living naturalists each to write a brief account of the most outstanding adventure they had had, showing why the "shock, ecstasy, beauty, wonder, tragedy, or intellectual illumination of that moment, hour, or day" had stayed with them. Three dozen, chiefly ornithologists, found time to do so, and their fresh writings comprise the unrelated chapters.

Some might have been predicted from knowing that Terres edited *Audubon Magazine* for many years. Accounts of whooping cranes, ivory-billed woodpeckers, and South American flamingoes almost *had* to go in. As first-hand, wide-eyed experiences vividly told, they fully live up to the reputations of their several authors. Other chapters on birds tell of paradise parrots in Australia, lammergeier vultures in Baluchistan, crowned eagles and lyretail honeyguides in Africa, wrens and nightingales in Europe, ant-thrushes, Cooper's hawks, eider ducks, killdeers, and the bones of great auks in the New World. Other chapters paint ecological pictures: both J. Dewey Soper and Alexander B. Klots write on areas in the Canadian Arctic; David Lack, on birds and insects migrating through a pass in the Pyrenees; Victor H. Cahalane, on being overwhelmed by the richness of animal life in Kruger National Park; Ira N. Gabrielson, on the death and rebirth of the Malheur National Wildlife Refuge. For exciting adventures, it would be hard to beat Arthur A. Allen's account of the time he was reported drowned in the Gulf of Mexico, or Olaus J. Murie's tale of escape at Three Arch Rocks—or the retelling of George Miksch Sutton's engulfment by a dust storm, or Olin S. Pettingill, Jr.'s honeymoon brush with the sea on Cobb Island, or E. Thomas Gilliard's clamberings on Funk Island, or even Alexander Sprunt, Jr.'s ridiculous adventure: bitten by a dead alligator! But the one we like best, and wish all naturalists and would-be naturalists would read, is F. Fraser Darling's sensitive account of the experiences that led him to become a naturalist.

Both of these books have a timeless quality that will make them stimulating reading for years to come. We wonder how many people will wish the volumes had indexes, to make it easy to find again half-remembered tidbits of special appeal. That the reader will want to return repeatedly for more is an outstanding feature of each volume.

LORUS J. MILNE
MARGERY MILNE
Durham, New Hampshire

On Virtuosity

The Seeing Eye. H. Asher. Duckworth, London, 1962. viii + 270 pp. Illus. 30s.

Pain, Its Modes and Functions. F. J. J. Buytendijk. Translated by Eda O'Shiel. University of Chicago Press, Chicago, Ill., 1962 (translated from *Over de Pijn*, 1943, 1957). 189 pp. $3.95.

These small volumes are both intended for the general scientific reader, but there the similarity ends. Asher gives us a delightful book packed with provocative but testable scientific theories and precise information. It is clearly the product of his early work in the development of radar and of his subsequent life of love and labor in the Physiological Laboratory of the University of Birmingham (England). His topics embrace a very wide subject matter that ranges from the psychology of vision and the effects on it of alcohol and lysergic acid to directions for producing a great variety of optical effects and measurements, which would be equally at home in the diagnostic clinic or as startling innovations for the after-dinner hour in the rumpus room.

Asher uses over 150 illustrations of conventional and unconventional optical apparatus and experiments, drawn in the style of the "Amateur Scientist" section of the *Scientific American*. Throughout the book there is no page that does not attest to an exuberant and imaginative ingenuity and often to a salty and down-to-earth humor as well. We can readily believe that a colleague

on entering Asher's laboratory looked at a new piece of apparatus and exclaimed, "Good Lord! What is that?" The book will be fun for anyone who enjoys observing a scientific virtuoso. It will probably be most useful to those who teach optics and ophthalmology.

Pain is a verbose and pseudo-philosophical work. Its general tone can best be indicated by quotation: "An analysis of pain shows that what we call the 'vital' should be regarded as a particular manifestation of an ethical order rather than as a specific instance of conformity to the laws governing the 'vital' sphere" (page 137). Buytendijk then continues to elucidate his views as follows: "Painfulness is therefore an insult and injury to the sense of what is right . . . and we notice in it the three typical effects of physical injury: inevitability of impression [which he elsewhere denies], 'dynamization,' and accentuation of the self-conscious." His point that the degree to which pain is experienced is profoundly influenced by psychological factors and that pain in turn influences the outlook of the victim is well enough taken, but this was expressed far more clearly a decade ago by W. K. Livingston, who is not mentioned.

Except in a very brief "annex" at the end of the book, the references, and there are many, date from the 1920's and the 1930's, with negligible exceptions in the early 1940's. The reader will look in vain for modern knowledge in this field. Beecher's extensive studies on pain in World War II casualties are barely mentioned in this little "annex," and there is nothing about the newer work on the central nervous system and pain. The investigations of Hall and Stride in England, of Thompson and Melzack in Canada, or of Hernández-Peón, Hill, Erwin, Mark, Wall, and others in this country are not mentioned.

Bewilderment that a man who has held a series of professorships in ancient and distinguished universities in the Netherlands should write such a book is lessened by the knowledge that he is also the author of books on the psychology of football, on Dostoevsky, and of what is said to be a broadly sympathetic work on women. But what is to be said of a distinguished university press for placing its seal of approval on this sort of volume, which is neither up-to-date nor a worthy classic?

GAIRDNER B. MOMENT
Department of Biological Sciences, Goucher College

Education: Then and Now

The Search for a Common Learning. General education, 1800–1960. Russell Thomas. McGraw-Hill, New York, 1962. xi + 324 pp. $6.95.

Since before World War I, a movement against mere specialization has spread in American education, a movement toward requiring all students to spend some time examining varied matters that all men should understand. A basic cause of the movement, as Russell Thomas shows in *The Search for a Common Learning*, has operated for much longer: a reaction that began early in the 19th century against the divergence of scientific and vocational from classical studies. The reaction sought teaching that would retrieve a community of culture and that would favor the individual as such, apart from and above his work. Such teaching should also have served, within the sciences, to dispose men toward the pure, basic end of that dimension which shades off into vocationalism at its other extreme.

Thomas's book is divided into a historical narrative, which he cuts off at 1930, plus a longer description of recent general education programs at 18 selected colleges. He believes that certain schools, such as Chicago and Minnesota, had made all the basic qualitative innovations by 1930 and that what came afterwards was proliferation and spread and, sometimes, confusion. While this claim may reveal some pride of locality in Thomas, who is professor of humanities at the University of Chicago, the positive aspect of the claim is fair.

Innovation and principle mean much in his view of how practice develops. The historical section of his book unfolds in terms of the policy pronouncements and the formulations of program put forward by college leaders. The longer section catalogs, in college-by-college snippets, the incarnation of policy in detail. He acknowledges the ways that administrative dealings, social conditions, and economic necessity have affected programs, but the structure of his book assumes a more schematic notion of cause: that some men have worked out broad principles of educational policy, based on more or less clear philosophical analysis, and that programs have resulted from such principles. Defects in programs have resulted from incorrect or eclectic philosophy.

The book is oriented to the special vocationalism of the educational spokesman and administrator, assuming as it does the efficacy of the administrator's ideas. It thus shows little of the educational results in which Thomas himself believes and which he wished to realize through placing present practice in historical context. The underlying difficulty may be, as his own approach might consider, philosophical. Educators have often paid lip service to the fact that much learning takes place outside schools. There are men in all fields who do not limit their perceptions to their own specialties. The conditions that have produced such men are facts in the history of general education. The conditions that continue to produce them are part of the whole educational process which society supports, sometimes without administration. Investigating such conditions can never be an easy task, but it is the task without which any description of educational programs must fall into routine.

DANIEL H. CALHOUN
Department of History, Harvard University

Imprints from the Past

Fossils. An introduction to prehistoric life. William H. Matthews III. Barnes and Noble, New York, 1962. x + 337 pp. Illus. Paper, $2.25; cloth, $5.75.

This attractive handbook, written mainly for the amateur collector of fossils and the student of historical geology, contains a wealth of information about the various plants and animals that have left their imprint in sediments of the geologic past.

The first seven chapters (92 pp.) give a brief summary of what fossils are, of the various kinds and types of these ancient remains, and of how they came to be preserved; they relate the manner by which fossils provide evidence of organic evolution and are used to identify and correlate strata and to determine paleoclimates and pathways of former seas; and they furnish basic instruction for the beginner to follow in finding, collecting, preparing, identifying, photographing, cataloging, and exhibiting fossils.

Chapters 8 to 11 (86 pages) deal with the physical history and life record of the various geologic periods and sys-