detail that they have a stunning effect almost equal to that of a blunt instrument. In the present case, however, although the author has produced masses of information just as imposing as those served up by any of his colleagues, the material is beautifully organized and is presented with the easy mastery of a champion weight lifter.

The author begins by summarizing briefly what is known about the Stone Age peoples and industries of Europe, Western Asia, and Africa south of the Sahara and about the conditions under which the people lived. He then presents in great detail the evidence bearing on the Stone Age races and cultures of Northern Africa including the Sahara (from the Red Sea to the Atlantic) and on their environmental settings and ecologies insofar as these are known. The resulting broad picture is remarkably coherent and complete. It may seem to some that undue emphasis is placed on the eastern half of the desert, but that is doubtless because this is the area with which McBurney is most familiar personally. There is a good map at the beginning of chapter 1, and dozens of excellent illustrations are scattered through the text.

No book covering so vast and complex a field can be expected to be wholly free from errors of either omission or commission, and so the following critical remarks should not be taken as detracting from the unique, over-all value of McBurney's work. Apparently a considerable time elapsed between the completion of the manuscript and its publication; for I find no mention of the very important palaeobotanical data and radiocarbon datings published in 1956 and subsequently by Pons and Quézel, nor of Hugot's reports on Capsian finds in the central western Sahara. The relationship between the present sedentary agricultural population of the desert and the waves of negroid immigrants who entered it from the Sudan in Neolithic times also seems to have escaped the author's notice, although I discussed this point at length in print in 1957 and 1958.

Some of McBurney's conclusions seem to me to be open to serious question. The "Tibbu" (= Teda) of the Tibesti, for example, are surely not of "Central-African origin" linguistically, at least not according to Greenberg, nor do they seem to me to be so physically. I disagree emphatically, on somatological grounds not to mention technotypological considerations, with the assumption that "the Mechta el Arbi strain is ultimately of western origin . . . [and] brought . . . the basic traits of a backed-blade industry from South-Western Europe. . . ." The skull known as *Dar es Soltan C-1* does not belong, in my opinion, to the "Mechta el Arbi strain" but to some strain rather like that which Angell has called the "Basic White" variety of *Homo sapiens*. Nor was the "Mechta el Arbi type" ever "totally replaced by Mediterraneans," but on the contrary, was absorbed by them so gradually that even today Mechta-like individuals appear now and then among the modern Berber population of the Kabylie Mountains. I still have serious doubts regarding the supposedly neanderthaloid character of the Haua Fteah mandible which, judging by the published photographs and measurements, could easily be lost among the Mesolithic mandibles from Afalou and Taforalt. And finally, the far western trans-Saharan trade route was open not only "in the remote past" but has been in almost constant use, certainly for the last 500 and possibly for the last 5000 years.

A few factual errors have crept in here and there, but they are of only minor importance. Bir el Ater is not "in southern Tunisia" but in southeastern Algeria, some 90 kilometers due south of Tebessa and roughly 15 kilometers west of the Tunisian border; Taferjit, which lies 135 kilometers (not "some 200") west of Agadès, is hardly "in the southern Aïr." And "Akhnet" should be written (and pronounced) "Ahnet." The "Aterian tang" is found outside Northern Africa not only on Easter Island but also in the highlands of Central America. And Aterian industries are distributed far more widely, in, as well as south of, the Sahara, than McBurney leads the reader to suppose.

This rather forbidding list of critical comments and downright criticisms should not be taken too seriously, however, for the flaws noted therein are no more than scattered specks on the surface of a wonderfully complete and polished piece of solid work. McBurney's new book is certainly the standard reference work in its field for everyone who can read English easily, and it will probably remain so for a good many years to come.

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The Intelligent Man's Guide to Science. vol. 1, *The Physical Sciences*. vol. 2, *The Biological Sciences*. Isaac Asimov. Basic Books, New York, 1960. xiv + 853 pp. Illus. + plates. 2 vols. (boxed), $15; $11.95 (until 25 December).

Here, at last, is something new in popular science writing. For once an author has taken the whole of modern science as his oyster, and he has shown himself equal to the task without patronizing the reader, taking him for a babe-in-arms, or doing devilish damage to the contents by culling his material from third-hand sources. For at least one reviewer who started with a considerable allergy towards all popularized science, the world will never again be quite the same. It happens that Isaac Asimov is a professor of biochemistry at Boston University. More important, he is one of the most polished and imaginative writers of science fiction, and he is the author of several previous, more limited popular science books. He writes like a professional, not like a scientist speaking ex cathedra, and in two extensive fields of science, his knowledge is so far reaching that he can draw a synoptic picture far more vivid than any that have gone before.

Asimov's fields are the physical and the biological sciences. For him, physics consists of a complex of astrophysics and particle theory, while biology is a system that proceeds from biochemistry to the associated subjects of neurophysiology and genetics. All else, as they used to say of the nonphysical sciences, is stamp collecting. I happen to agree firmly with Asimov about what is central in science and what is not, and I will defend him to the death against traditionalists who might deplore his not starting with "Heat, Light, and Sound" or his giving short shrift to "Natural History." In fact, my only criticism is that he occasionally departs from the key areas, the growing tips of modern science, and digresses inconsequentially. The most notable examples of this are a piffling and incomplete chapter on technology, "The Machine," which has little to do with the rest of the book, and some over-naive judgments about the early history of science.

The main body of each volume, however, gives the most up-to-date, the most exciting, and the most readable general account of the spur heads of modern science. I would recommend these

volumes above any other popular book and above many conventional texts as being suitable for anyone, from high-school age onward, who wants to understand those parts of science where man's heaviest intellectual artillery is being deployed.

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Biological and Chemical Control of Plant and Animal Pests. A symposium. L. P. Reitz, Ed. AAAS Publication No. 61. American Association for the Advancement of Science, Washington, D.C., 1960. xii + 273 pp. Illus. $5 (cash price to members); $5.75.

Pesticide Handbook, 1960. Donald E. H. Frear, Ed. College Science Publishers, State College, Pa., ed. 12, 1960. 265 pp. Illus. Paper, $1.75; cloth, $3.25.

Chemical and Natural Control of Pests. E. R. de Ong. Reinhold, New York; Chapman and Hall, London, 1960. viii + 244 pp. Illus. $8.75.

The AAAS publication, a group of 19 papers presented at a symposium arranged by the section on Agriculture at the Indianapolis meeting of the AAAS (1957), is a powerful counterpoise to some of the inaccurate thinking which has found expression here and abroad on the subject of chemicals in our food. One might hope that the fuzzy thinking of the alarmists does have a useful by-product if it indeed stimulates scientists working in the field of pesticides and biological control of pests to become more articulate, as reflected in these papers. Another by-product is a more vigorous exploitation of the biological control of pests that attack our plants and animals.

The first five papers are grouped in part 1 under the heading "The public's stake in pest control." M. R. Clarkson, J. R. Hansbrough, and J. A. Beal (U.S. Department of Agriculture), E. H. Fisher (University of Wisconsin), and B. L. Oser (Food and Drug Research Laboratories) present a well-rounded picture of the need for pesticides, together with some outstanding examples of their use and regulation by the Department of Agriculture and the Food and Drug Administration.

The four papers in part 2 are grouped under the heading "Recent advances in chemical control." G. L. McNew (Boyce Thompson Institute for Plant Research) outlines progress made with the newer fungicides and antibiotics in controlling plant diseases. R. H. Beatty (AmChem Products) gives a brief history of 2,4-D and its extraordinary usefulness, and he also discusses some of the newer herbicides. J. E. Casida (University of Wisconsin) describes the behavior of some of the systemic insecticides for use on plants and animals. F. O. Gossett (Eli Lilly and Company) gives an account of the anthelmintics and other chemicals used to combat internal parasites of domestic animals.

The final 10 papers are grouped in part 3 under the heading "Biological control of pests." These are separate contributions by W. C. Snyder, C. A. Fleschner, and E. H. Stanford (University of California); J. D. Briggs (Illinois Natural History Survey); E. F. Knipling and N. F. Waters (U.S. Department of Agriculture); J. D. Rodriguez (University of Kentucky); A. D. Pickett (Canada Department of Agriculture); J. R. Shay (Purdue University); and R. H. Painter (Kansas State University). A broad range of topics is covered here, from antagonism as a plant disease control principle to the use of pathogens, parasites, and predators for controlling pests; the use of atomic radiation to sterilize male screw-worm flies, which results in their annihilation; the breeding of disease-resistant crops and animals; the effect of nutritional changes in the host and the host's reaction to parasites; disease resistance in animals; and the effect of pest control practices on biological balance in apple orchards. I recommend these papers to those who would strive for a balanced outlook on pest control and eradication. It is quite evident that (i) chemicals are extremely useful and necessary for pest control; (ii) the use of chemicals is being properly regulated; (iii) there is active exploration of biological control in its many aspects; (iv) there are new methods, such as male sterilization by gamma radiation, which will have important consequences in the future; and (v) the way is open for the combined action of both chemical and biological control methods to enable man to decrease the stupendous toll exacted by plant and animal pests and parasites.

The articles in parts 2 and 3 contain many useful references; there is a subject index. This volume is a worth while and very interesting book to have on one's shelf.

If one has occasion to look up the trade names of pesticide formulations or what they contain and who sells them, the *Pesticide Handbook* is the standard reference on the subject. Frear lists 7851 formulations and gives the contents according to their labels. A list by active ingredients is tied in through a number system with the formulations presently on the market in the United States. There is also a useful list defining the registered pesticides and their legal tolerances on certain raw agricultural commodities.

Chemical and Natural Control of Pests, if judged by its title, should cover a wide scope, but actually it is largely oriented toward insecticides and their recommended uses. Unfortunately, it requires the reader to know which insecticides recommended for use are no longer manufactured or readily available and which ones are no longer of much use against a given species because of insect resistance. The pesticides listed in the appendix have not been brought up to date with respect to the common names or the trade names. In several instances, the names used in the text cannot be found in the appendix. Despite these shortcomings, the book contains much useful information.

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A Revision of the Species of Schizonycha Dejean (Col.:Melolonthidae) from Southern Africa. *Bulletin of the British Museum (Natural History), Entomology*, vol. 9, No. 2, pp. 63–218. R. D. Pope. British Museum (Natural History), London, 1960. Illus. + plates. 50s.

This is a most welcome, much needed revision of work on the species of the scarab beetles of the very large and difficult genus *Schizonycha* inhabiting southern Africa. Over 300 species of *Schizonycha* have been described, and all but eight are African. This part, the first step of a proposed revision covering the entire genus, includes the natural faunistic unit found south of a line across the continent along the border between Angola and Southwest Africa and continuing eastward along the Zambezi River. Very few species