many of the contributions of paleontology, anthropology, ecology, and the history of evolutionary thought with recent developments in population dynamics and adaptation.

There are a number of well-chosen illustrations that add to the interest of the text. In such a large framework, some subjects and much pertinent information is necessarily omitted in a short text. Nevertheless, the material covers most of the genetic and much other information that is very pertinent to an appreciation of current theories of evolution. The reader who is struck by Dobzhansky's optimism in his discussion of what is called "evolutionary ethics" may enjoy comparing his views with those expressed recently by Darlington in his volume *Facts of Life*. Evolution has produced mankind; in studying his greatness and limitations, we need to respect and understand evolution. Dobzhansky's *Evolution, Genetics, and Man* will help many students to do so.

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The Recent Genera of the Caridean and Stenopodidean Shrimps (Class Crustacea, Order Decapoda, Supersection Natantia) with Keys for Their Determination. (No. 26, Zoologische Verhandelingen) L. B. Holthuis. E. J. Brill, Leiden, Netherlands, 1955. 157 pp. $3.60.

Students of the decapod Crustacea throughout the world will enthusiastically welcome this review of the recent genera of the caridean and stenopedian shrimps of the world. Its keys bring up to date the corresponding portion of Borradaile's "Classification of the decapod Crustacea" [*Ann. and Mag. Nat. Hist.* **19**, 457 (1907)] which, however, did not include categories below subfamilies; it goes beyond that classic endeavor in diagnostically keying out all known valid genera. For each genus, the type is indicated, and a pertinent though not exhaustive synonymy is given, which includes all changes in the spelling of the individual generic names. Highly commendable are the results of the effort that was made to illustrate each genus with a typical, where possible the type, species, usually by reproducing the original or best published figure or figures; the publications in which they appeared are conveniently listed by authors; in two instances, original drawings were prepared by the author for this paper. I find nothing to criticize in this exceptionally well done piece of work.

In itself a masterly contribution, it may be thought by some to be a relatively small one in view of the immense number of genera in zoology; however, in the aggregate, it is an exceedingly significant basic step, one might say, toward the eventual realization of the much-needed synoptic treatment of the plant and animal kingdom that has been so earnestly advocated by T. K. Just of the Chicago Museum of Natural History before the National Science Foundation and elsewhere.

It is to be sincerely hoped that this is but the forerunner of a series of papers that, in time, will encompass, at least, the remaining genera of the Crustacea Decapoda.

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Medical Research: a Midcentury Survey. vol. I. *American Medical Research: In Principle and Practice.* xxxii + 765 pp. vol. II. *Unsolved Clinical Problems: In Biological Perspective.* xxxii + 740 pp. American Foundation, New York, 1955. $15.

When a book fits no standard pattern, it is perhaps the reviewer's first duty to say what sort of book it is. The answer would be that this is a book of essays discussing medical research from every angle: scope, where done, support, objectives, and problems. They are good essays, not to be read at a sitting but to be savored of an evening. They are the product of 15 years of thought and compilation by Esther Everett Lape and her staff in the American Foundation, aided by consultants who included several Nobel laureates.

The thesis of the volumes is that medical progress comes through research and that, in the main, fundamental research at basic levels precedes clinical applications.

The first volume starts with and stresses medical research as related to biological, chemical, physical, and mathematical science. It goes on to a series of philosophical discussions of the meaning of research and to means of financing research, with particular reference to the influence of government. Then comes the principal section on the agencies that conduct research: universities, their medical schools, foundations, and institutes. This is really fascinating reading because of the illustrative detail from many institutions. Finally, there is a section on official and unofficial standardizing agencies and patent policies. One can pick nearly any subject in medical research, or in fact in medical education, and find it discussed in different settings through the various chapters. I cite the following examples of discussions on the problem of medical faculties and their teaching and service loads:

"The principle of full-time men as heads of preclinical departments is everywhere accepted. In clinical departments, a major obstacle to full time has been the great disparity between a full-time salary and the amount a part-time clinical teacher can earn from private practice—according to some reports, from five to ten times the amount received for teaching. Yet of the value of full time in clinical as well as in preclinical departments there has been significant evidence. In one academic council debating whether or not to continue full time, a dean testified that by virtue of the full-time system the clinical departments of that school had become, in the broadest sense, university departments, carrying on teaching and research together, in accordance with graduate school standards" (p. 123). "Among dangers . . . in the practice of medicine by faculty members as a source of income for the medical schools is the possibility that the faculty may be selected on the basis of earning rather than of teaching capacity" (p. 153). ". . . all such arrangements simply put the medical school in the position of operating a business and sharing in the income; or of making the men who earn the income contribute to their own salaries or to the support of their departments. . . . All service beyond that necessary for teaching and research [is] alien to the primary function of education" (p. 272).

On the other hand, Phemister (University of Chicago) was quoted, ". . . under existing economic and social conditions in the United States, the most promising way of gradually placing education in clinical medicine on a uniform basis of organization and on an educational level that most nearly approximates the educational level of other university departments appears to be by the employment of full-time group practice for the clinical department of the medical school" (p. 272).

On university relationships, the following may be cited: "However remarkable the developments for enriching and enlarging observation outside the hospital, medical education designed to produce practicing physicians is not likely to dispense with the hospital . . . [but] there are those that would stress the need of drawing the medical school closer to the university for the stimulus and sustenance medical progress derives from biology, genetics, animal husbandry, chemistry, physics, psychology, anthropology. Medical schools today are, on the whole, better described as attached to rather than integrated with universities. The growing volume and significance of the contribution to medical research from nonmedical university divisions and the advantages in the scientific training procurable in many of these divisions have prompted some to ask whether the urgent present need may not be a bold experi-

ment in integrating medical schools with universities on the theory that segregated medical schools organized primarily to produce practitioners may not produce the best medical training" (p. 275).

The second volume turns from the general to the specific. Nine major baffling subjects are reviewed in detail and with a surprising virtuosity: background, present state, and anticipations. Investigators are in general curious about the status in fields other than their own, but often find reviews in other fields written by investigators for investigators somewhat incomprehensible. The discussions in this volume will be helpful and orienting to them and also to many others who are interested in health problems, in foundation work, and in the work of government agencies.

The nine problems are covered in sections of perhaps 50 pages each, which are in the main composed as annotated compilations of the literature rather than as highly original interpretations.

The first section, cancer, slights neither fundamental problems in growth, nor, at the other extreme, chemotherapy, and it places the emphasis of the latter properly at preponderantly a preclinical level of development. The next section, on infertility, hardly discusses the problem of fertility, surely a basic problem in the world today. The problem of how to adjust populations to resources by better means than war, plague, and even improved production and distribution presses for an answer. Arteriosclerosis, hypertension, and the rheumatic syndromes, the next three sections, skirt the problem of aging, another fundamental.

The two sections on tuberculosis and virus diseases exemplify the present state of infectious diseases: tuberculosis, the bacterial representative, still a problem but well on the way to solution; and the smaller virus diseases, which are as yet beyond chemotherapy. No one knows the fundamental difficulty in treating virus infections. It is probably not simply the intracellular position of the invader; more likely it lies in the fact that the virus particle possesses life only when it can borrow the enzyme systems of the host cell, and thus is inseparable from the cell. Perhaps one must sacrifice the cell if one is to kill the virus during its intracellular period.

The last two sections, alcoholism and schizophrenia, are intensely interesting. Next to the problem of fertility and population, mental troubles head the list of human disabilities. We are all conscious of the present hints of biochemical as well as the more traditional psychopathological mechanisms in the mind, and these are well touched upon:

"The present intensified interest in the effects of drugs in schizophrenia or other forms of mental illness is due, in part, to immediate therapeutic hope, and, in greater part, to the promise which some of these drugs seem to offer of shedding light on the biochemical mechanisms involved in mental disorder" (p. 650).

After a reviewer states what is in a book, he should say how good it is, what its uses may be, and what are its faults. The subjects are excellently presented, truly a major accomplishment. The book's usefulness is obvious, both as a source of thoughtful pleasure and of fact. The faults I do not find serious enough to mention.

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Shock and Circulatory Homeostasis. Transactions of the fourth conference 6–8 Dec. 1954, Princeton, N.J. Harold D. Green, Ed. Josiah Macy, Jr., Foundation, New York, 1955. 291 pp. Illus. $5.

The chapters included in this report are "Action of epinephrine in man," by Henry Barcroft; "The circulation in the periphery," by Hugh Montgomery; "Mesenteric lymphatic dynamics in the rat," by Silvio Baez; "The circulation in the splanchnic area," by J. D. Myers; "The pulmonary circulation," by André Cournand; "The pulmonary circulation in hemorrhagic shock," by J. E. Merriman; and "The aortic and coronary blood flow," by Donald E. Gregg.

Social Sciences

Research Frontiers in Politics and Government. Brookings lectures, 1955. Stephen K. Bailey, Herbert A. Simon, Robert A. Dahl, Richard C. Snyder, Alfred de Grazia, Malcolm Moos, Paul T. David, and Donald B. Truman. Brookings Institution, Washington, 1955 vii + 240 pp. $2.75.

This small volume surveys the new research techniques and theoretical developments important to the extension of knowledge of politics and government. The specialist will find this a convenient summary, and the layman will get an insight into the vast research area bearing directly and indirectly on politics, government, and political behavior. The professional will find some gaps, the layman some confusion, and both enough interest to warrant the reading of the 1955 Brookings series.

Like most frontiers, those surveyed in *Research Frontiers* are often not well-marked. As a result, the sound of border warfare comes from its pages. While all eight contributors are political scientists, much of the research into political behavior bears little resemblance to the traditions of the field. Indeed, I felt some concern lest my colleagues in political science find themselves occupationally displaced by the psychologists, social anthropologists, and sociologists. But the final contributor, David B. Truman, effectively restored the balance.

Stephen K. Bailey of Princeton opens the series by surveying familiar ground—the relationships between academicians and operators and the approaches to research in politics and government. In his contribution, "Recent advances in organization theory," Herbert A. Simon of the Carnegie Institute distinguishes between programed and nonprogramed decision-making. The object is to devise organizational structures to get the right decisions. Experiments along this line are surveyed, all of which might suggest to the layman both the danger of over-organization and the advantage of inefficiency that might make it tolerable.

Decision-making, the meaning, and the distribution of power are considered on a far grander scale by Robert A. Dahl of Yale in his "Hierarchy, democracy, and bargaining in politics and economics." These control systems, together with the price system, are viewed as complementary and not as exclusive power arrangements or social techniques. Reality is mixed; all techniques of control are used. This is true enough, but stressing this obvious point too much has its dangers. The pure models excluded complementarity, but stressing the mixture tends to obscure the vast differences in control systems.

New frontiers are surveyed by Richard C. Snyder of Northwestern University in his "Game theory and the analysis of political behavior." The practical politician and the professional bureaucrat "play the game" instinctively. Game theory promises to sharpen instinct and even to correct it. Now even the scholar might play the great game of politics vicariously. Snyder is modest in his claims. Game theory has yet to prove its utility. He suggests some interesting applications in international politics where the theory might throw some light on situations that are shrouded by security regulations. Moreover, in conflict situations with varying strategies available to both sides, with a range of possible outcomes depending on the pairing of strategies, and a range of pay-off values, policy makers might become more explicit and less vulnerable to surprise by the application of game theory.

Alfred de Grazia of Stanford, in "Research on voters and elections," surveys the techniques of probing voter behavior. This interesting contribution closes with the disquieting observation that "Traditional democracy is being slowly crushed in the gigantic pincers of depolitization and totalitarianism." But this feeling is partly offset by Malcolm Moos of Johns Hopkins who, in "New light on the nominating process," gives a reasoned