with the Tao or Way of No-knowledge of China and Asia generally. Hence the title of his book. Operationally speaking, what this amounts to is the realization that living experience is an art as well as a science and that it requires the cultivation of intuitive esthetic sensitivity and normatively guided choosing as well as formal theory construction with its indirect operational and experimentally defined methods of confirmation. I welcome this conclusion by Siu because it amounts to an independent confirmation, by a Western trained scientist of Asian name and cultural background, of the analysis of scientific procedures and the interpretation of Taoist and Buddhist Asian culture of *The Logic of the Sciences and the Humanities* and *The Meeting of East and West.*

Siu's second prescription is even more specific and follows from the first. The adequate executive in any social institution, whether it be the government, a university, a research laboratory, or a foundation, must combine an appreciation of the scientific method for solving problems of fact with (i) aesthetic sensitivity to the problematic subtleties of experience and (ii) disciplined philosophical analysis of its problems of value of the two different types. In the words of the title of this book's final chapter, the truly scientific decision-maker must be "The philosopher-executive."

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The Admirable Discourses of Bernard Palissy. Translated by Aurèle La Rocque. University of Illinois Press, Urbana, 1957. vi + 264 pp. $5.50.

The only major publication by Bernard Palissy, *Discours admirables,* summarizes the lectures he started to present to a selected group in 1575. The book appeared in 1580 when Palissy was perhaps 70; his birth date is not definitely known. The discourses between Theory and Practice are "on the nature of water and fountains . . . on metals, salts and salines, on rocks, earths, fire and enamels. . . . Plus a treatise on marl, very useful and necessary, for those who practice agriculture . . ."

Aurèle La Rocque presents an introduction and an annotated translation from the rather difficult, antiquated French. This is the book of a practical man who liked to call himself *"ouvrier de terre et inventeur des Rustiques Figulines du Roy et de Monsieur le duc de Montmorency"*—a worker in earth materials and inventor of the naturalistic patterns. He is not a "skeptical chemist" like Robert Boyle in his dialogues (1661), but he criticizes philosophers, alchemists, and certain physicians. From his experiences with the crystallization of salts, the working of clays, and the coloring of glass he derives very definite concepts of good and bad water and their role in the formation of ores, stones, and petrifacts and the operation of salt flats and pumps. He is particularly moving when he describes his long struggles with potteries and enamels, which taught him the difference between "evaporative and accidental humors" and "fixed and radical humors" in clays.

Both the translator and publisher deserve our thanks for this addition to the historical library of the geologist, mineralogist, and chemist.

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Livestock Improvement in Relation to Heredity and Environment. J. E. Nichols. Oliver and Boyd, Edinburgh, ed. 4, 1957. xi + 240 pp. Illus. 16 s.

Few books have been written on livestock breeding in which a successful balance was achieved between genetical theory and actual breeding practice. The volume by Nichols is probably the outstanding example of a happy synthesis in this field. First published in 1944, the book is now in its fourth edition. Its author, who is professor of animal husbandry at the University College of Wales, has had wide experience in Australia and Britain, and this has been of remarkable benefit to his presentation.

After short introductory chapters the author presents the bare principles of heredity and brief discussions of the complexity of genic interaction and of the interplay between genotype and environment. The major substance of the book is indicated by chapters on the following subjects: gene and character frequency; environmental aspects; genetic aspects of (i) selection; (ii) inbreeding as a mating system, (iii) line-breeding; outbreeding and hybrid vigor; mating likes and unlikes; performance and progeny testing; breed construction; and type and environment. There is a concluding review of the present status of animal breeding research and its applications.

The book is written in a clear but condensed style and demands an attentive reader. It should admirably answer its purpose, though one may hope that most students will read it with a broader grounding in genetics than is provided by the author. As complementary reading in courses on general genetics, Nichols' book is to be recommended highly, since it gives an excellent picture of the many and intricate problems associated with the improvement of slowly reproducing animals of economic value. One might wish for somewhat more extensive illustrations. There are a good list of references and a satisfactory index.

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The Human Sum. C. H. Rolph, Ed. Macmillan, New York, 1957. vi + 232 pp. Illus. $3.75.

This book deals with two distinct, though related, topics: the changing structure of the family and world population problems. The essays on the family, by C. J. Rolph, Jacquetta Hawkes, Michael Young, Peter Willmott, Edward Blishen, J. M. Mackintosh, James Lansdale Hodson, and Sherwin Bailey, do an admirable job of making clear the changes that have taken place in the structure and emotional flavor of the family unit during the last hundred years, particularly among the lower classes in England. Jacquetta Hawkes epitomizes the present-day urban family as a unit that is "living in its own small box, belonging to no living community and perhaps even ignorant of the names of its neighbors"—a unit that, of all forms of the family so far invented, is "probably the hardest to maintain." This theme is developed further by the other essayists, with little overlap of material. The illustrations by Alfred G. Wurmser enliven an already lively text.

The portion of the book that deals with population problems is somehow less satisfactory. It is not that the essays are not sensible, for they are. Julian Huxley gives a graphic picture of present-day overpopulation; Mary Stocks writes an interesting history of the birth control movement; while A. S. Parkes brings us up to date on recent contraceptive experimentation. Bertrand Russell writes with his usual pithy common sense. It's all good. But it's all been said before. There are so many good books on population problems now—books that remind us of those Dylan Thomas complained about ("books that told me everything about the wasp except *Why*"), books that tell us all that we need to know about population except *what now*? Are we really so unable to see the end of the story? Or are we afraid to describe what we see? Two generations ago there were those who realized that "sex" was a problem, and they sought to grapple with it by writing books just filled with facts about stamens and pistils and pollen and birds and bees. Their facts were true, but these had little relevance to the human problem. Is it not possible that most of what now passes for discussion of "the

population problem" is as peripheral to some real, though unstated, problem as was the birds-and-bees literature to the earlier tabooed subject? Perhaps we should have a moratorium on books on "the population problem" until some rash iconoclast tells us what it is that really bothers us.

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Philosophy of Mathematics and Natural Science. Hermann Weyl. Revised and augmented English edition based on a translation by Olaf Helmer. Princeton University Press, 1949. 311 pp. $1.95.

Now available in a paperback printing, the 1949 English edition is, in the main, a translation of an article first published in 1927 as *Philosophie der Mathematik und Naturwissenschaft,* Oldenbourg. It includes many minor changes in the text, additional references, and six essays on developments during the intervening years in mathematics, physics, and biology.

The Story of Albert Einstein. The scientist who searched out the secrets of the universe. Mae Blacker Freeman. Random House, New York, 1958. 178 pp. $2.95.

It was announced some years ago, as the result of an investigation, that if one asked the average man on the street to name several distinguished scientists working in this country, the only name he could recall was that of Einstein. Quite recently typical groups of high-school students were directed, by means of a questionnaire, to give their impressions of the daily life and personal characteristics of the professional scientist.

The results are truly appalling. But to me, at least, it seems quite clear that the statistical average reply constituted a fairly true picture of the work and personal traits of Albert Einstein. Fortunately or unfortunately, Einstein was in no way a typical scientist. He may not have been even a typical genius. He has been called, with some justification, the greatest intellect of the 20th century. But it would be hard to match some of his personal peculiarities.

Where could one find another man of great professional distinction who habitually wore the most informal attire and "forgot" to change to formal clothes when delivering an important invited address at a foreign institution? Who rode by preference in a third-class railway coach and *walked,* carrying his luggage, from the station to the castle of the Queen of Belgium, while the official welcoming committee searched vainly for him in the first-class coaches?

In the book under review, many other classic and apparently true stories concerning Einstein are set forth in simple and dramatic style, occasionally with an added embellishment that the author may have gleaned through her personal acquaintance with Einstein and his friends during several years of his sojourn at Princeton. Mae Blacker Freeman, wife of a well-known physicist, wisely makes no attempt to describe or discuss the scientific discoveries that brought such world fame to Einstein. Her book, which is designed for young readers, is confined almost solely to Einstein as an unusual human being. Relatively full treatment is given, appropriately, to his early life, prior to his first university position.

It has always seemed to me that the most significant part of the life history of any acknowledged genius is just this early period. What were the circumstances that encouraged, or at least allowed, the unfolding of great intrinsic talent? So often it seems as though only a fortuitous combination of circumstances has served to avert the suppression of such development. Einstein, quite possibly because he was a Jew, was unable to get a university position in Switzerland after his graduation from a Swiss institution. But he did finally obtain a routine position in the Swiss Patent Office, where the daily work assigned to him was dispatched in a comparatively short time, leaving the major part of the day free for him to "think." Here the theory of relativity was developed—a product of pure thought, although based of course on sound knowledge of experimental facts.

The latter portion of Einstein's life was occupied, in great part, with his endeavors to help those of his own race, all over the world, and to advance world peace. He was an admitted pacifist and conscientious objector, with a complete contempt for the military forces ("the vilest offspring of the herd mind"). Yet it was Einstein's personal appeal to President Roosevelt that set in motion the huge research project that led to the atomic bomb as well as to industrial uses of nuclear energy.

The hero worship that enveloped Einstein in his later years is almost unbelievable. He is, so far as I know, the only scientist who has ever rated a ticker-tape parade along Broadway or who has been greeted with a storm of applause when he appeared in a box at the Metropolitan Opera. These and many other details of such hero worship during his tours all over the world are duly set forth, with a minimum of emphasis on the slanderous attacks also made upon him.

Presumably this little book is designed to inspire young students to choose a scientific career. But when the results of the questionnaire already mentioned are taken into consideration, the effect may well be just the opposite. The personal life of Einstein surely makes interesting reading, but it is far from the life of the typical scientist and far from one that even the typical scientist would care to emulate. Most scientists, so far as their personal lives are concerned, are quite normal human beings, a fact concerning which the average high-school student now seems completely uninformed.

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Biological Aspects of Cancer. Julian Huxley. Harcourt, Brace, New York, 1958. 156 pp. $3.75.

The evolution of this book is as interesting as the subject matter. It began as a lecture, grew into two reviews, and emerged in its present form. The stimulus for this development was the discovery of "so many unfamiliar facts" which led to "so many ideas novel to . . . a biologist" that the author came to the realization that "cancer, far from being a field of purely medical concern, is a key subject for general biology in its present stage of development." While this conclusion is applicable to other problems of medical science, it is heartening to know that a biologist of Huxley's stature emerges from his "hard labour" with an opinion shared by oncologists interested in the biological aspects of cancer.

The volume should be read by biologists who are unfamiliar with the cancer process and, of more importance, by all who are engaged in cancer research, regardless of their previous training. The summary should be read first to acquaint the reader with the broad objectives and conclusions of the author. Huxley's interests include the fundamental factors involved in the origin and growth of cancer, the various agents responsible for the occurrence of the disease in experimental animals and man, present-day theories of the origin of the cancer process, and practical procedures for treatment and prevention. No book of this size could include all biological aspects of cancer, but this is a well-balanced discussion.

Oncologists will find statements in support of the opening sentence that the author "has never done original