BOOKS

WHAT'S THE WORLD COMING TO?
By A. M. Low
J. B. Lippincott Co., N. Y. $3.00

Reviewed by E. T. Bell
Professor of Mathematics

IF THE QUESTION had been "Where's the world going to?" it might have been answered by a pessimist in one word. In forecasting the next hundred years, the author is by no means downhearted, and his readers will doubtless be greatly cheered till they realize that the book is based on the appalling assumption that the human race is to survive another century. This, for our battered and dissolute old world, is a fate worse than atomic disintegration. What has the world done to deserve it?

Nothing spectacular

The spectacular end promised less than a decade ago is not going to arrive: "A hundred years hence atomic fission will be a commonplace. People will be so used to radio-activity in its various forms that they will instinctively protect themselves against it when necessary."

Nor is there any prospect of extinction by starvation. Under scientific farming and the like the world food supply is to go on increasing indefinitely. People will raise more food to feed more people to raise more food to feed more people to raise . . . till the welkin bursts.

A contributory cause will be artificial insemination, by which "it will be possible for a single man to be the father of many thousands of children by different women." With the aid of a slide rule, a world almanac and some elementary physiology the reader may apply this to all the nubile human females of Asia alone, to see where the population will stand in 2051. (On one another's heads, several hundred deep.)

Interesting legal problems are suggested: "Our"—that is, England's—"legislators are so busy discussing whether a man may marry his divorced wife's sister that they do not worry to make sure that he cannot marry his own daughter produced by"—artificial insemination. The issue might well be debated by our Supreme Court before it is too late.

Many of the predictions in the ten chapters of the book are already well on the way to realization; others are reasonable extrapolations from what we are now trying to enjoy.

"War in the future" surveys push-button weapons, biological warfare, radio-active bombs, etc., all in so temperate a tone that the Pentagonal brass could safely recommend this chapter as a sedative for jittery civilians.

The future of radio is apparently to be normal and as dull as its past. Color is to boom television. What is to happen to commercials is left to the realm of nightmare.

Nothing very exciting is forecast for health and medicine, and likewise for sport and leisure. The author somewhat rashly predicts that "educated people will probably revolt" against professional boxing on account of its alleged coarseness and occasional danger. Boxing is polite compared to the wrestling television brings to us in our own homes, and no revolt against it has started yet.

Religion, like boxing, is to be reformed by neglect. It will be replaced by "the power of thought" which gave us aircraft, including long-range bombers, although we had no wings with which to fly.

Forecast of knowledge

The conclusion of it all is that "the greatest lesson of the past century has not yet been learned by every scientist. It is that the sum of our present knowledge is virtually nothing at all." By crossing out "virtually" we get what may be an accurate forecast of knowledge a hundred years hence. At our present rate of progress there may be nothing at all in 2051 capable of knowing anything.

On the whole the book is amusing entertainment for those who can relish a gruesome joke not always intended as such.

A CENTURY OF SCIENCE: 1851-1951
Edited by Herbert Dingle
Roy Publishers, New York $4.75

Reviewed by Charles E. Bures
Asst. Prof. of Philosophy and Psychology

THIS VOLUME, written by seventeen British specialists, spans the century between the Great Exhibition of 1851 and the Festival of Britain in 1951. The purpose of the symposium is to survey and assess the major changes in science during that period. No earlier century can match the scientific developments of the era just past, and this survey succeeds in giving one a sense of the fascinating sweep of those achievements.

Looking backward

It is difficult to understand today how much was yet undone and unknown in 1851. To give some samples of the time, by 1844 Darwin had written the first sketch of his *Origin of Species* in his notebook. Ether was used in surgery in 1846 and the first Public Health Act (in England) was passed in 1848. In 1850, Bond made the first successful astronomical photograph. In 1850, Helmholtz measured the speed of a nerve impulse, and the next year invented the ophthalmoscope. In 1851, Joule calculated the average speed of a gas molecule. In 1852, the notion of valency was introduced into chemistry by Frankland. In 1854, Lord Kelvin used the term "energy" in its modern sense.

Sciences like physics and biology were on the threshold of great advances; others, like chemistry and geology, had been basically formulated by mid-century. Thermodynamics, field and particle physics were yet to come. Synthetic organic chemistry, stereochemistry and physical chemistry were largely untapped. Speculations about the structure of the universe were just beginning. Fundamental problems of astrophysics and cosmology could just be formulated.

The year 1859 marked the beginning of the Darwinian era in biology. Virtually non-existent at that time were such fields as genetics, human paleontology, biochemistry, animal nutrition, bacteriology, endocrinology, modern surgery, psychodynamics, psychometrics and many others.

In general, the promise shown by science in 1851 has been fully achieved. Important new developments can be expected in the coming century, with special acceleration

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in the life and social sciences. But science has already pressed on us strong need for social reorganization. Part of the difficulty lies in attitudes. Problems and social crises are felt as annoyances hindering a state of enduring peace and progress. If one more hurdle could be surmounted, all would be serene. A more realistic attitude would recognize social dislocations as one of the inescapable prices of new knowledge and new techniques. A wiser social policy would recognize the recurrent need for social adjustment and prepare trained men to meet such needs.

A CENTURY OF TECHNOLOGY

Edited by Percy Dunsheath, D.Sc.
Roy Publishers, New York $5.00

Reviewed by Donald S. Clark
Professor of Mechanical Engineering

IT WOULD HAVE BEEN better to entitle this book "A Century of Technology in Great Britain." While the editor states in the preface that many of the advances presented in the book are of British origin, no attempt is made to restrict the story. As one might expect, since it is written by British "experts," the story is from the British point of view and reflects the influence of technological developments over the period 1851-1951 upon life and affairs in England.

Eighteen individuals, reported to be experts in their respective fields, have written the nineteen chapters with varying degrees of success. The fields include metals, nonmetals, chemicals, textiles, fuels, power, production, electrical engineering, petroleum, biochemicals, agriculture, foods, transportation, navigation, communication, printing, recording, and education. An adequate review of technological developments in the past one hundred years can hardly be given in the space provided for so many subjects. For example, the field of iron and steel is covered in seventeen pages, hardly sufficient for a field that has had such a tremendous development in this period.

This reviewer, being best qualified in the field of metals, finds some errors and serious omissions in the section on metals and, therefore, questions the complete reliability of the other sections in so far as accurate reporting is concerned. Most engineers outside of England will probably find this book of relatively little interest and certainly of little value as a review of technological development for the past century on a world-wide basis. The chapter on technological education is written solely about the English educational system, which further emphasizes the suggested change in title. The work of men in other countries is mentioned when it concerns developments in England, but otherwise they are given little, if any, attention.

SCIENCE IN PROGRESS 7th Series

Edited by George A. Baitsell
Yale University Press,
New Haven $6.00

AS IN THE SIX earlier volumes of this notable series, the subjects covered in this seventh book are based on material prepared for the Sigma Xi National Lectureships and were first presented to local groups of the Society.

This 7th series, of course, maintains the high standard of the first six and, if anything, covers a broader area of the science field than many earlier volumes.

Caltech is represented this year by Carl Anderson, Professor of Physics, who writes on "The Elementary Particles of Matter."

The other chapters:

"The First Heart Beats and the Beginning of Embryonic Circulation" by Bradley M. Patten, Chairman of the Department of Anatomy at the University of Michigan; "The Reproductive Cycle of the Rhesus Monkey" by George W. Corner, Director of the Department of Embryology of the Carnegie Institution of Washington at Baltimore; "Human Infancy and the Embryology of Behavior" by Arnold Gesell, Director of the Gesell Institute of Child Development, New Haven; "Radiation Damage to the Genetic Material" by H. J. Muller, Professor of Zoology at Indiana University; "Beyond the Gene—Two Years Later" by T. M. Sonneborn, Professor of Zoology at Indiana University; "The Macromolecular Structures of Biological Materials" by Ralph W. G. Wyckoff, Scientist Director of the National Institutes of Health, U. S. Public Health Service; "Atomic and Solar Energy" by Farrington Daniels, Professor of Physical Chemistry at the University of Wisconsin; "Atomic Structure and Energy" by J. R. Dunning, Dean of the School of Engineering at Columbia University; "The Theory of Braids" by Emil Artin, Professor of Mathematics at Princeton University; "History of the Fauna of Latin America" by George Gaylord Simpson, Chairman of the Department of Geology and Paleontology at the American Museum of Natural History, and Professor of Vertebrate Paleontology at Columbia University; "The Physical Chemistry of Polymers" by Raymond M. Fuoss, Sterling Professor of Physical Chemistry at Yale University.