moral responsibility, because the development of military means of mass destruction is within their sphere of activity. I feel, therefore, that the formation of the Society for Social Responsibility in Science satisfies a true need. This society, through discussion of the inherent problems, will make it easier for the individual to clarify his mind and arrive at a clear position as to his own stand; moreover, mutual help is essential for those who face difficulties because they follow their conscience.

Very truly yours,

ALBERT EINSTEIN

Concerning the Zoological Record

The Zoological Record was founded in 1864 by a group of British zoologists mainly connected with the British Museum (Natural History) and the Zoological Society of London, with the object of providing each year a comprehensive bibliography of zoological literature. The first volume, dealing with the literature published in 1864, appeared in 1865, and since then the annual series has continued unbroken, a unique example of scientific bibliography. Because of the war there is now, unfortunately, a delay of about two years, and Volume 84, dealing mainly with the literature of 1947, is the last complete volume published, although several separate sections of Volume 85 have already appeared. However, as soon as printing conditions are easier, it is hoped to get back to the normal practice of completing and issuing the *Record* in the year following the literature to which it refers.

It will be obvious that a publication of this nature is most costly to produce and could hardly hope to be self-supporting unless sold at a very high price, but it has always been the policy of the Committee to provide the *Record* at a price within reach of individual research workers. As a result, many difficulties have had to be overcome during its varied history, and it has been dependent to a large extent upon private donations.

The *Record* was first issued by Van Voorst, a London publisher interested in natural history, but after five volumes he abandoned the venture as unprofitable. Volumes 6–22 were issued by the Zoological Association, a private body helped by grants from the British Association for the Advancement of Science, the Royal Society, and the Zoological Society of London. The Association found itself unable to continue after 1886, when the Zoological Society first undertook full responsibility. In 1900 another change in the administration took place with the foundation of the *International Catalogue of Scientific Literature*, published under the auspices of the Royal Society, for one of the annual volumes in this catalogue professed to cover the same ground as the *Zoological Record*. It was agreed, however, after some difficult negotiations, that the Record Committee of the Zoological Society should remain responsible for the compilation and editing of the volume dealing with zoology, with the *International Catalogue* bearing the cost of printing and publishing. This system continued until the first world war, and, with the resulting breakdown of international arrangements, the Royal Society ceased to be responsible for any volumes of the *Catalogue* subsequent to those dealing with the literature of 1914.

The Zoological Society of London then continued to issue the *Record* from 1915 to 1920, reserving a set in sheets for the possible future use of the *International Catalogue*. However, it was not found possible to resume the production of this somewhat ambitious *Catalogue*, and since that date the Zoological Society has undertaken the sole responsibility for the *Record*. It was considered only reasonable, however, in view of its great value to zoologists, that other organizations and individuals should be invited to contribute at least a share of the cost. As a result, a certain number of donations have been received, but they are still inadequate to meet the expenses. In view of the international character of the *Zoological Record*, the committee responsible for its general direction has now been enlarged to include representatives of the British Commonwealth and certain foreign countries. The present American representative is Remington Kellogg, of the U. S. National Museum.

There is a mistaken impression that the *Zoological Record* is of interest only to the systematist, but, as mentioned previously, it is invaluable to workers in all branches of zoology. To provide easy reference the *Record* is divided into sections representative of the various zoological groups, and each reference is allotted to its appropriate section and then dealt with under three headings: (1) Titles, arranged in alphabetical order of the authors' names, with a full bibliographical reference; (2) Subject Index, giving a detailed analysis of the subjects dealt with in each article; and (3) Systematic Index, comprising a list of all the animals referred to in the section concerned, including those described as new forms, arranged in systematic order. This arrangement enables the reader to find the information regarding the current zoological literature of any group under the authors' names, under specific subjects, or under the scientific names of animals.

The nature of the service given by the *Zoological Record* is illustrated in the following excerpt:

I. TITLES.

66.—CHRISTENSEN, J. F. The oocysts of coccidia from domestic cattle in Alabama (U.S.A.), with descriptions of two new species. *J. Parasit.* Urbana, **27**, 1941, pp. 203–220. 2 pls. 1 text-fig.

II. SUBJECT INDEX.

STRUCTURE.

SPOROZOA

Eimeria spp. (including new) from American cattle, CHRISTENSEN, **66.**

ECOLOGY

PARASITISM: Hosts—

MAMMALIA: *Bos taurus*, intestine (U.S.A.): *Eimeria alabamensis* spp.n., *E. subspherica* spp.n. (Sporoz. Coccid.) CHRISTENSEN, **66.**

ECONOMICS

COCCIDIOSIS: Coccidiosis in U.S.A. cattle. CHRISTENSEN, **66.**

III. SYSTEMATIC INDEX.

4. SPOROZOA. (b) COCCIDIIDA

Eimeria alabamensis, *E. subspherica* spp.n. (with key to other spp.) from cattle, U.S.A. CHRISTENSEN, **66.**

As an illustration of the comprehensiveness of the

Record, it may be mentioned that Volume 84, covering the literature for the year 1947, contains references to 12,431 papers and books appertaining to zoology.

The *Record* can be obtained from the Zoological Society of London, Regent's Park, N. W. 8, either as a complete bound volume or in sections. The published price of the complete volume is 80*s*, and the advance subscription price, 65*s*.

S. A. NEAVE, *Secretary*

Zoological Society of London

Book Reviews

German Aviation Medicine, World War II, 2 vols. Prepared under the auspices of the Surgeon General, U. S. Air Force. Washington, D. C.: Government Printing Office, 1950. 1,302 pp. $8.50 the set.

At the close of the second world war in Europe, groups of experts were sent from the United States to Germany to appraise the work in aviation medicine done there during the war. They found that many of the very valuable results were in danger of being lost as a result of the destruction of research institutions and scattering of personnel. Consequently, a plan was formulated and executed under the direction of Major General Malcolm C. Grow, USAF, to establish an Aero Medical Center at Heidelberg, where a group of leading German aeromedical research workers were brought together and provided with the necessary assistance and facilities to collect all available aeromedical research reports, reproduce lost material so far as possible, and organize the whole into a coherent record of German wartime achievement in aviation medicine. This work was carried on with great success, under the direction of Colonel Robert J. Benford, up to March 1947, when it was transferred to the United States, primarily at the School of Aviation Medicine, Randolph Field, Texas.

The present two volumes are the result of this plan. Specifically they are the work of 56 specialists who undertook the writing of the various sections. The contents are divided into 14 major parts, the first two being general and introductory, the rest being devoted individually to specific subjects.

Part I (Hubertus Strughold) gives a brief historical sketch of German aviation medicine, a statistical presentation of the various subjects of research, and a summary of the major fields, showing when, why, and how they were developed.

Part II (H. Beauvais, H. Mauch, H. Kensche, U. K. Henschke) traces the development of German military aircraft in terms of general performance characteristics and tactical use and the parallel progress of aviation medicine. Its final chapter discusses the mechanical-physiological-psychological problems of control.

Parts III, IV, and V are devoted to high-altitude research. The first of these presents physical characteristics (pressure, temperature, air motion, etc.), of the air at various altitudes, (E. Regener), and discusses low-pressure chambers and other equipment, instruments, and techniques used in high-altitude research (H. W. Denzer, H. Rein).

Part IV, written by an imposing array of specialists (E. Opitz, K. Kramer, F. Palme, H. Schaefer, E. Schütz, W. Noell, U. C. Luft, H. W. Denzer, W. Hornberger, T. Benzinger, F. Büchner), occupies roughly half of the first volume. It covers the field of high-altitude physiology (primarily anoxia in humans), with chapters devoted to studies on blood, respiration, heart, and brain. Additional chapters deal with general altitude tolerance, acclimatization, decompression sickness (bends, etc.), explosive decompression, and with animal experiments at reduced pressures and the pathology of anoxia in animals and man.

Part V (T. Benzinger, H. Seeler, W. Hornberger, W. Noell, H. Becker-Freyseng, J. Pichotka) is devoted to a discussion of oxygen equipment, conventional and pressure breathing masks, pressure suits and pressure cabins, and to the physiological problems arising in connection with the design and use of this equipment.

Part VI (H. Freise, O.. Gauer, S. Ruff, F. N. Scheubel, J. Schneider, H. Spatz, H. Haber) deals with acceleration. The several chapters discuss measuring devices, moderate accelerations of several seconds' duration in which the primary physiological effects are cardiovascular, brief, severe accelerations which produce laceration of body tissues, parachute-opening shock, injuries in training gliders, brain injuries, protective equipment (helmets, body armor), and the probable effects of a gravity-free state (in interstellar space) on man.

Volume II leads off with Part VII—"Mechanical Vibration and Noise," (W. Ernsthausen, W. von Wittern, W. E. Loeckle, F. A. Kipp). The topics discussed include sources of sound and vibration in aircraft and the physics and physiology of man's reaction to them, measuring instruments and techniques, physiological effects of mechanical vibrations and noise in aircraft, its physical characteristics and auditory effects.

The very important problems of hot and cold environments are the subject of Part VIII (K. Büttner, H. Kuhn, K. Wezler, F. Grosse-Brockhoff, H. Schwiegk, H. Siegmund). The first two chapters discuss the climatology of the German theaters of operation and the thermal conditions within aircraft cabins. The succeeding three chapters present the general problems of heat balance in man, the physical factors of convection, radiation, evaporation, etc., the physiology of hyperthermia, and the physiology and therapy of hypothermia. These are followed by two chapters on local cold injury, pathogenesis and treatment, pathology, and histology. The final chapter discusses protective clothing.

The great importance of the eyes in aviation and the number and complexity of visual problems is presented in Part IX (H. W. Rose, I. Schmidt, H. J. Autrum, H. Strughold), which contains eight chapters devoted respectively to visual acuity, flying goggles, visual fields, color vision, depth perception, night vision, electroretinograms, and the physiological effects and possible military applications of intermittent light.

Part X (H. Frenzel, H. Strughold) discusses the special problems of the ear and the peripheral mechanoreceptors in aviation. The subjects presented include trauma in the middle ear and the sinuses due to pressure differentials, the equilibrative function of the vestibular apparatus, hearing loss, and the role of the larynx in speech with reference to the use of throat microphones. These are followed by a brief discussion of the pressure sense and posture sense, their importance, and factors affecting their efficiency.

Selection, training, and medical care of flying personnel are the subject of Part XI (A. G. A. Bingel, S. Gerathewohl, K. Kreipe, I. von Hattingberg, H. Becker-Freyseng, O. Graf, G. Lehman, H. Hansen, W. Heubner). The contents include standards of physical fitness, psychological examination and