Book Reviews

Sorok Let Sovetskovo Zdravookhraneniya, 1917–1957. (Forty years of Soviet health protection). Ministry of Health Protection, U.S.S.R. Medgiz, Moscow, 1957. 662 pp. 26 rubles.

This large book, handsomely bound in red and gold, was issued by the Ministry of Health of the Soviet Union to celebrate the occasion of the 40th anniversary of the Communist regime in Russia.

The scope of the book is best indicated by the titles of the 23 chapters, as follows: "The protection of health in the USSR"; "History of the development of the Soviet health system"; "Sanitation and epidemiology"; "History of the development of urban medical services"; "Medical and sanitation services for industrial workers"; "The struggle against tuberculosis"; "The struggle against venereal and skin diseases"; "Oncologic services"; "Psychiatric services"; "Health on railroad transport"; "Medical and public health services for rural populations"; "The health of women and children"; "Health resorts, sanatoria and rest homes"; "Military medicine"; "Medical personnel, their education and training"; "Medical science"; "Medical press"; "Medical libraries"; "Medical industry"; "Pharmacy enterprises"; "Public health education and personal hygiene"; "The Society of the Red Cross and Red Crescent"; and "Professional association of medical workers."

Among the contributors are Maria Kovrigina, the present Minister of Health of the U.S.S.R., and her two predecessors, E. I. Smirnov, now Surgeon General of the armed forces, and G. A. Miterev, now head of the Red Cross and Red Crescent Society.

There are four full-page portraits—of Lenin, Semashko, Pavlov, and Burdenko. Pavlov remains the patron saint of Soviet medical science; Semashko was the first Commissar of Health and probably the most important single individual in the establishment of the Soviet system of public health; Burdenko was a neurosurgeon, a hero of the Soviet Union, and first president of the Academy of Medical Sciences. In keeping with the present fashion in Soviet history writing, more recently deceased or living political personages are not mentioned, and the chauvinism of the latter part of the Stalin period has been moderated.

Many of the chapters contain tables and figures demonstrating the growth and development of medical resources in the Soviet Union. The material is selected, of course, and the basic definitions often are somewhat different from those used in the United States. Conclusions and comparisons should be made, therefore, only after careful study and cross-checking of the data. In this regard, two recent books of information on Soviet health resources are particularly important. These are the fourth edition of K. V. Maistrakh's *Organizatsiya Zdravookhraneniya* (Organization of Health Protection) (Medgiz, Moscow, 1956) and the Ministry's *Zdravookhraneniye v SSSR. Statisticheskii Spravochnik* (Health Protection in USSR. Statistical Handbook) (Medgiz, Moscow, 1957).

The population of the Soviet Union was stated to be 200 million in 1956, of which 87 million were urban and 113 million were rural residents. These 200 million people were served by 329,000 physicians, or 16 per 10,000 population (although this figure includes some personnel that would not be classified as members of this profession in the United States). Soviet physicians were assisted by 930,000 feldshers, midwives, nurses, and other trained individuals and by over 1.5 million other workers in the field of health protection for a total complement of 2.78 million employees, or almost 3 percent of the civilian labor force. There were 1.36 million beds in 24,105 hospitals throughout the Soviet Union, or 67 beds per 10,000 population.

Distribution of physicians by the 15 republics comprising the Soviet Union varies from 10 per 10,000 population in the Tadzhik S.S.R. to 16 per 10,000 in the Russian S.F.S.R. The urban-rural differences, however, continue to be large. Thus, although 14,790 of the total 24,105 hospitals were rural, there were 313,170 beds in the rural hospitals, or 23 percent of the total number of beds in the U.S.S.R. Only 36,686 physicians, or 11 percent of the total for the country, were assigned to rural areas. Apparently a considerable proportion of the medical needs of the rural population was met by feldsher–midwife stations, of which there were 68,300, all in rural areas.

In 1956 the Soviet Union had 77 medical "higher educational institutions," which included 68 medical schools, two stomatologic institutes, and seven pharmaceutical institutes. This system had an enrollment of over 150,000 students and graduated 16,600.

The 1956 budget of the Ministry of Health was 34,600 million rubles. This represents approximately 3.5 percent of the gross national product and an annual per capita cost of approximately 175 rubles. This sum covered the salaries of 2.78 million employees, almost all therapeutic and preventive-medical services, sanitation, medical education, and medical research. Medical activities of the armed forces are budgeted separately.

By contrast with the exact figures given on the material resources, the data provided on the actual health conditions of the population continue to be disappointingly sparse. Kovrigina states (page 27) that the crude death rate in the U.S.S.R. was 8.2 in 1955 and 7.7 in 1956 and that the life expectancy in 1955 was 64 years. The direct tabular comparison she makes with the United States and other countries is of quite limited meaning without information regarding the age and sex distribution, possible exclusion of certain groups, and other definitions of the population covered or information about the statistical methods by which these figures were derived.

Morbidity rates for seven major infectious diseases are tabulated (page 96) but, unfortunately, these are restricted to comparative data for 1929 and 1913. The claims of virtual elimination of malaria and of typhus, as well as of the classical pestilential diseases, are not supported by actual rates or basic figures. In this same regard, although it is an interesting fact that 6,321,100 people received tuberculosis vaccinations in 1956 (page 164), the volume presents no concrete information regarding either morbidity or mortality from tuberculosis in the U.S.S.R. during the whole Soviet regime. Apparently, detailed health statistics still remain either unavailable or a state secret, and until these become available for analysis, many of the official statements must be considered to be unsupported. It is to be hoped that meaningful morbidity and mortality data from the Soviet Union may be supplied for the next anniversary volume.

The book is, of course, like most official summations of this kind, meant to portray the nation's health protection system in a favorable light; nevertheless, it contains a wealth of information, and its omissions are also sometimes quite revealing. It is to be hoped that this book, as well as Maistrah's volume and the statistical handbook mentioned above, will be translated into English, in full, and widely distributed so that American physicians and health scientists can reach their own conclusions. The Soviet system of medicine, based on concepts so different from ours, is a

working fact about which we should be thoroughly informed and which we should try to understand.

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Graphic Methods in Structural Geology. William L. Donn and John A. Shimer. Appleton-Century-Crofts, New York, 1958. viii + 180 pp. Illus. + plates. $4.

Thinking in terms of three dimensions is an essential skill for geologists, and graphic representation ranks with words and numbers as a means of transmitting geological thought. Therefore Donn and Shimer's subject is important. Their book is a convenient manual of those common graphic methods which should be mastered not only by students but by geologists engaged in practical work. The authors assume no previous experience and little knowledge on the part of the reader. They "lead the student by the hand" from extremely simple to more advanced material.

Although the emphasis of the book is upon graphic methods of solving problems, elementary means of geologic representation are also included. Geologic sections and block diagrams are introduced in a paragraph or two for beginners but are not fully discussed. Geologic maps are given more attention, particularly with respect to relations between structure, topography, and areal distribution patterns of rock units. This treatment could be readily understood by students who are just beginning structural geology, and some of it could be understood by liberal arts students or persevering laymen.

The greater part of the book is devoted to graphic methods of obtaining quantitative solutions to structural problems and is not intended to enthrall the nontechnical reader. Orthographic projection is completely described—from true and apparent dip to advanced fault problems in which inclined faults have oblique net slip. One of the ingredients of many solutions is the arbitrarily chosen structure contour, and the authors wisely introduce this conspicuously, early in the game.

Stereographic projection is explained briefly and well. The relative advantages of stereographic and orthographic methods are indicated. Stereographic solutions are developed for apparent dip, strike and dip from vertical drill-core data, intersecting surfaces, plunge, pitch, and certain fault displacements. In addition, there is an explanation of the procedure of rotating the sphere of projection about a horizontal or inclined axis to solve "two tilt" and other important problems which are almost uniquely amenable to stereographic treatment. The use of stereonets in structural petrology is not specifically described, but the basic principles are adequately covered.

The degree of accuracy of the presentation appears to be good, and only a few probable errors were noted. Several illustrations in the first 50 pages are rather crudely drawn, but the great majority of the 103 figures are clearly executed.

The authors and readers should be well satisfied with this book. It will be particularly useful to geology students who have not had courses in descriptive geometry and to those who wish to understand stereographic methods. Other, more complete, treatments are available, but many of these deal only with one segment of the subject matter which Donn and Shimer have compiled so compactly.

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Physics. Erich Hausmann and Edgar P. Slack. Van Nostrand, Princeton, N.J., ed. 4, 1957. x + 722 pp. Illus. $8.

Fundamentals of Physics. Henry Semat. Rinehart, New York, ed. 3, 1957. 914 pp. Illus. $8. (Also available in two vols.)

Physics. A textbook for colleges. Oscar M. Stewart. Sixth edition by Newell S. Gingrich. Ginn, Boston, ed. 6, 1957. viii + 756 pp. Illus. $6.50.

These three current revisions of well-known texts for a one-year course in college physics are evolutionary rather than revolutionary versions of earlier editions. In each there are refinements such as upgrading of the paper stock, re-drawing of figures with greater use of shading or perspective to make diagrams clearer, changes in the order of topics and chapters, and the omission or abbreviation of certain topics to make space for new material, with no significant change in over-all length or character of the work.

All three continue to adhere to the classical division of physics into mechanics, heat, sound, electricity and magnetism, light, and atomic physics, and in essentially this order. *Hausmann-Slack* has 26 pages on radiation and atomic structure and 17 pages on solid-state electronics; *Semat* has 104 pages on atomics and nucleonics and about a page on transistors and semiconductors. *Stewart-Gingrich* has 25 pages on atomic physics and makes little mention of modern solid-state theory. An effort has been made in each book to solve the problems of units—a matter of great concern to many physics teachers. The trend from centimeter-gram-second units to meter-kilogram-second units is clear, but the transition is not complete. Particularly in electricity, it would seem better for both *Semat* and *Stewart-Gingrich* to work with only one (meter-kilogram-second) system of units.

Hausmann-Slack, clearly a text for engineering students or science majors, uses a considerable amount of mathematical background and some calculus. The discussions are brief and to the point, and satisfactorily rigorous. Perhaps the best feature of the new edition is the inclusion of new problems—problems which are varied, interesting, and challenging and which involve many up-to-the-minute situations. *Semat* uses no calculus, some trigonometry. It should be sufficiently rigorous and complete for students majoring in sciences but not too difficult for nonscience majors. The discussions are particularly clear and accurate, and the problems are varied and not too difficult. The discussion questions at the end of each chapter (they are not merely review questions) offer a particularly valuable supplement to the more usual problems. Probably all science courses should require students more frequently to analyze situations clearly and accurately in words and symbols, in addition to learning to solve problems for numerical answers. *Stewart-Gingrich* is designed for a general college physics course for students with no special mathematical background. It uses a rather standard, classical approach. While some sections are extremely well written, it tends more often than the other two books to give oversimplified, and occasionally inaccurate, statements and underived or unexplained formulas. Most chapters conclude with a brief, factual summary.

All three books have been used and liked by teachers for some years; the new editions will continue to serve in essentially the same types of courses and for the same types of teaching.

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Biochemical Preparations. vol. 5. David Shemin, Ed. Wiley, New York; Chapman and Hall, London, 1957. viii + 115 pp. $4.75.

Biochemical Preparations is designed to provide reliable procedures for the preparation of substances of biochemical interest and to illustrate valuable techniques and methods. It presents information about stability, properties, purification, and assay of the compounds included. This series may be warmly recommended to teachers, students, and research workers in biochemistry and related fields.

Two years have elapsed since the publication of the preceding volume. The editors hope subsequent issues may