

position in the community, and the rapid changes that are occurring, not only in medical and surgical knowledge and practice, but also in the general structure of our civilization, demand that the education of the general practitioner shall be from time to time critically reviewed. As a contribution to this need, the World Health Organization held, at Edinburgh in 1961, a conference on the "Training of the Doctor for his Work in the Community" and this was attended by 38 experts from 22 European countries and the U.S.S.R. The papers given by eight of the principal speakers at the conference have been published by the World Health Organization as No. 20 in the series of *Public Health Papers* (Pp. 114. Geneva: World Health Organization; London: H.M.S.O., 1963. 4 Sw. francs; 6s. 8d.; 1.25 dollars).

The first contribution, entitled "The Work of the Physician in the Community", is by Dr. R. Scott, director of the General Practice Training Unit, University of Edinburgh. Prof. R. Senault, professor of hygiene and social medicine, Faculty of Medicine, Nancy, France, follows with a paper on the present preparation for medicine, and Dr. J. R. Ellis, secretary of the Association for the Study of Medical Education, discusses remedies for existing faults in Britain's educational system. Prof. E. E. Boesch, Unit of Psychology, University of the Saar, Saarbrücken, discusses the psychological basis of the physician's education. Prof. L. Vandendriessche, professor of physiological chemistry, University of Ghent, deals with the part played by psychology, biochemistry and the basic sciences in the education of medical students, and Prof. Villars Lunn, professor of psychiatry, Rigshospitalet, Copenhagen, discusses ways of educating them by psychiatry. Methods of helping them by the study of social medicine are discussed by Prof. R. Berfstam, professor of social medicine, University of Uppsala, and Dr. W. Hobson, chief of education and training of the World Health Organization European Regional Office, concludes the volume with a paper on international, national and local measures that may be taken to bring about desirable changes in medical education in Europe.

Biomagnetics

THE second International Biomagnetic Symposium was organized by M. F. Barnothy during November 29-30, 1963, on the Medical Campus of the University of Illinois, Chicago. Eighty participants from the United States and from overseas took part. Twenty-one papers, five theoretical and sixteen experimental, were presented. Nine papers reported on effects found in strong magnetic fields. Unless otherwise stated, the fields were homogeneous, ranging from 3,000 to 15,000 oersteds. J. M. Smith and E. L. Cook (Cincinnati) found an increase in the activity of trypsin (non-lyophilized). G. A. Akoyunoglou (Athens) found an increase in the activity of carboxydismutase. W. Reno and L. Nutini (Cincinnati) observed a decrease in the oxygen uptake in sarcoma-37, Ehrlich adeno-carcinoma and very early mouse embryo kidneys, but none in adult mouse kidneys. A minimum was found in the weight curve of young mice on the second day of their exposure to the field (J. M. Barnothy, Evanston, Illinois). An inhibition was observed in *S. aureus* cultures during their maximum stationary phase (H. G. Hedrick, Fort Worth). I. Sumegi (Stockholm), J. M. Barnothy and M. F. Barnothy (Illinois) described different pathological changes in spleens, livers, adrenals and bone marrow of mice exposed to magnetic fields. N. Amer (Berkeley) found that the number of wing abnormalities produced by X-ray irradiation of *Tribolium confusum* decreases when the pupae are, subsequent to irradiation, incubated in a magnetic field. M. F. Barnothy reported that leucocytosis produced through a treatment of homogeneous fields reduced the radiation mortality of mice at 800 r. by 27 ± 3 per cent. R. P. Mericle, L. W. Mericle, W. F. Campbell and D. J. Montgomery (Michigan) observed an inhibition of the germination of barley seeds, in equal

amounts, when the seeds were irradiated with X-rays (50,000 r.), or exposed to magnetic fields (3,000 oersteds, hom.); but the combined effect of irradiation and field produced a more than additive effect. Two papers dealt with the effects of the geomagnetic field. Y. Rocard (Paris) found that, on locations where dowser reflexes are observed, the geomagnetic field exhibits anomalies with gradients of the order of $0.3-1 \times 10^{-5}$ oersted cm. He was able to obtain similar dowser reflexes when a gradient of this order was artificially produced through concealed electric coils. G. Becker (Berlin-Dahlem) observed that many insects rest or take off in directions which agree with the four cardinal directions of the Earth's magnetic field. L. N. Mulay and I. L. Mulay (Pennsylvania) described a method for measuring the susceptibility of biological materials, utilizing the modified shape factor differences in magnetic resonance. Further information concerning the symposium and copies of the papers read can be obtained from Dr. J. M. Barnothy, Biomagnetic Research Foundation, Evanston, Illinois.

Diamonds in Atomic Energy Research

THREE short illustrated articles by members of the Atomic Energy Research Establishment, Harwell, have been reprinted from the April, May and June 1963 issues of *The Industrial Diamond Review* and issued as a separate pamphlet entitled *Diamonds in Atomic Energy Research* (Pp. 10. London: The Industrial Diamond Information Bureau, 1963). The machining of aluminium oxide (sapphire) single crystals, the diamond grinding of magnesium oxide, and the diamond grinding of ultra-thin ceramic petrological sections are the titles of the three articles. Ceramic materials are of considerable interest to the Atomic Energy Authority, since the drive for higher efficiency in atomic power production requires an increase in the temperatures that reactor materials must withstand. Ceramic materials are, however, generally brittle with poor resistance to thermal shock, and consequently before ceramic materials can be used as reactor materials their basic properties have had to undergo considerable investigation. The preparation of specimens for investigation led to the work described in the three articles in the pamphlet, and they contain much valuable technical information.

Fauna of New Zealand Sand Beaches

R. J. MACINTYRE has written an interesting account of the supra-littoral fringe of New Zealand sand beaches, in which data on the key environmental factors of this specialized habitat are discussed in relation to their effects on the restricted fauna (*Transactions of the Royal Society of New Zealand*, 1, No. 8; August 8, 1963. *The Supra-Littoral Fringe of New Zealand Sand Beaches*. Pp. 89-103. Wellington: Royal Society of New Zealand, 1963). He suggests that this fauna can usefully be divided into 'modifiers', which burrow in order to avoid extremes of heat, desiccation, etc., and 'non-modifiers', dependent on the chance shelter afforded by drift for assistance in withstanding these same adverse conditions. The 'modifiers' are mainly burrowing sand hoppers (with the species *Talorchestia quoyana* most prominent) with a few burrowing Isopoda, beetles, a sandfly and a centipede. The 'non-modifiers' include the shore hopper *Orchestia chilensis*, the isopod *Ligia novaezelandiae*, two crabs, the woodlouse and a few very specialized insects. Seagulls are the most important predators. The descriptions of the range of such environmental factors as temperature, salinity, etc., give a useful idea of the extremes to be met with in this very limited zone, and will be helpful to anyone planning more detailed ecological work in the future. The point is also made that this simple fauna, with large numbers of a very few species, is (like an arctic or a desert fauna) ideal for investigations of population numbers. The paper shows that a line of ecological work