News of Science

Physicians from Abroad and Medical Competence

The admission into the United States of large numbers of graduates of foreign medical schools is described as "reminiscent of the diploma-mill era of fifty years ago" by Willard C. Rappleye, dean of the Faculty of Medicine at Columbia University, in his annual report to President Grayson Kirk of Columbia. After pointing out that at the present time more than 25 percent of the house staffs in the hospitals of the United States are aliens, and that the percentage in a few states is more than 50 percent, the report says:

"It has been predicted recently that over 5,000 foreign-trained physicians will enter the country this year, compared with a total of 6,977 graduates of all the American medical schools. Most of the foreigners will be graduates of unapproved medical schools. In many sections of the country there are now two classes of citizens as far as medical services are concerned: those who are to be cared for by physicians who have had a satisfactory preparation for medical practice, and those whose medical care will be provided for by physicians who are graduates of substandard schools. . . . It is to be hoped that in fairness to the American public as well as to the individuals involved some equitable plan can be worked out to offer opportunities to foreign-trained physicians who would be welcomed as additions to the medical profession in this country, provided they meet reasonably satisfactory standards of educational preparation."

Rappleye's report also discusses a related medical problem, the national supply of physicians: "The gross ratio of the number of physicians in the nation's population—one doctor to about every 750 persons—is approximately sufficient if all were adequately trained, better distributed, up-to-date in their knowledge and skills, and more effectively used in relation to actual needs." Rappleye states that during the last 45 years the number of medical graduates has risen 117 percent, while the population has grown 76 percent:

"The output of the medical schools in recent years has increased more rapidly than the population. Last year the additions to the profession in this country totalled 7,917, almost twice the number of physician deaths reported—about 4,000. The net gain was about 3,900. The figures, however, are the least significant part of the picture, because the quality and competence of doctors are far more important than their numbers."

U.S.-Australian Submarine Cruise

Observations made on a recent United States-Australian scientific cruise on a British submarine will help to determine the exact shape of the earth and have contributed to knowledge of the formation of mountains. Sponsored by the Office of Naval Research, the 7500-mile cruise was made by *H.M.S. Telemachus* between 1 June and 1 Aug. The project was suggested in 1954 by Lloyd V. Berkner, president of Associated Universities, Inc., and the program of gravity measurements was laid out by Maurice Ewing and J. Lamar Worzel of Columbia University's Lamont Geological Observatory, J. M. Rayner of the Bureau of Mineral Resources of Australia, and A. Robertson of the New Zealand Department of Scientific and Industrial Research.

The *Telemachus* crossed the Tasman Sea from Sydney, Australia, to New Zealand, then zigzagged across the Tonga-Kermadec Trench between the Tasman Sea and the open Pacific Ocean. The vessel also visited Wellington and Auckland, N.Z., and the Fiji and Tonga Islands. Observations were made from the submerged submarine at depths ranging from 50 to 200 feet, where disturbances from surface waves are sufficiently reduced to allow precise measurements.

The Tonga-Kermadec Trench, which is about 1200 nautical miles long, extends from Samoa to New Zealand. Along the sides of the trench, the ocean depth is about 15,000 to 20,000 feet, and the trench itself is about 10,000 feet deep, making the distance from the surface of the ocean to the bottom of the trench a total of about 25,000 to 30,000 feet, one of the deepest ocean floors in the world.

A complex pendulum apparatus, invented by F. A. Vening-Meinesz of the Netherlands, was used for gravity observations. During the trip, about 130 gravity measurements were made by Hugh H. Traphagen of the Lamont Geological Observatory and Stewart Gunson of the Australian Bureau of Mineral Resources.

Gravity varies with geographic location because of the shape of the earth and the geologic structure of its crust. The *Telemachus* observations will be used to determine the types of rocks and their thicknesses in this ocean region. The resulting information will be pooled with other gravity observations for a more precise determination of the shape of the earth, a long-sought goal.

The Tonga-Kermadec Trench has been of particular interest to geologists and geophysicists, since it is believed to be an initial stage in the development of a new mountain range. Measurements taken aboard the *Telemachus* furnish new details of this mountain-building process. Sounding and seismic measurements of the trench were previously carried out in 1952–53 by Russell Raitt, of the Scripps Institution of Oceanography, La Jolla, Calif. Results of the work done on the *Telemachus* will be presented at a scientific meeting in Australia in December of this year.

Brain of Birds

It has long been recognized that cerebral evolution in mammals and in birds has gone in different directions. For, whereas in mammals each cerebral hemisphere has come to be dominated by a multilaminated cortex or pallium of superficial gray matter, in birds it consists largely of a deeply placed mass, the corpus striatum, which lies at the base of the telencephalon. The striatum is so uniquely complex and large in birds that it comprises most of the cerebral hemisphere, there being little overlying material that can be termed cortex. Since the olfactory sense tends to be degenerate in birds, it is not surprising that their archipallium, the primitive olfactory cortex, is poorly developed when compared with that of mammals or reptiles.

But what of those cerebral components that have evolved into the nonolfactory, neopallial cortex of mammals? To what extent are they present in the rudimentary cortex? Have they otherwise failed to develop? Or are they also included within the massive corpus striatum? If so, to what degree?

The matter of avian homologs of the mammalian cerebral cortex has occasioned some dispute. An archipallial cortex is indubitably present in birds. Some