showed a collection of first editions of the works of Vesalius, among which was the Fabrica of 1543, one of the most sumptuous works ever published. Harvey—the first great student of a function of the body—demonstrated the circulation of the blood in a series of masterly experiments which have been a model for all subsequent workers. In the publication of the "de Motu Codris," modern physiology may be said to have had its origin.

In lecture five Professor Osler described the steps by which we had obtained our knowledge of the changes wrought in the body by disease—morbid anatomy, the rise of clinical medicine, the introduction of means of physical diagnosis and the development of experimental pathology. The modern study of infectious diseases was traced, the work of Pasteur and of Koch described, and the practical application by Lister of the antiseptic method. The new problems in relation to the internal secretions were discussed, and it was held that the future would be largely concerned with studies in metabolism and clinical chemistry.

In the last lecture the practical application of the knowledge derived from recent researches was considered in relation to some of the more important diseases. The story of malaria was told in full and it was urged that a more active campaign against the disease should be undertaken in the southern states. The victory over yellow fever was retold, and the experience of the Panama Canal Commission was held up as a model showing what efficient organization will do. The building of the canal was made possible by the work of Laveran and of Ross and of Walter Reed and his colleagues. An appeal was made for more efficient control of typhoid fever and for a continuance of the fight against tuberculosis.

PROFESSOR BOWMAN'S EXPEDITION TO THE CENTRAL ANDES

PROFESSOR ISAIAH BOWMAN, of Yale University, sailed from New York on April 26 to conduct a South American expedition under the auspices of the American Geographical Society. His purpose is to complete the investigations he began in 1907 in northern Chile and Bolivia and continued in 1911 in the basin of the Urubamba River, Peru. His work this summer will be in that part of the central Andes lying in Peru, northwestern Argentina, adjacent portions of northern Chile and southwestern Bolivia. Professor Bowman will be accompanied by Mr. H. S. Palmer as geologist and a surveyor.

His field work will chiefly relate to the anthropogeography and the physiography of this region. The investigation of topography, drainage and climate will thus go hand in hand with the distribution and customs of the people. Part of the work will lie in the driest portions of the Puna of Atacama and the adjacent desert of Atacama where villages in isolated situations, vast salt plains and lofty table lands alternate with rugged volcanic masses and snow-capped sierras. It is a little-known region and some of the most interesting parts of it have not yet been studied scientifically. The climatic conditions are of great interest and the possibility exists of securing critical data on past changes of climate since the region lies in the transition zone of the horse latitudes, between the trades and the westerlies. The shifting routes of trade have had remarkable effects on the towns and villages scattered along them, not only in stimulating them to an unnatural degree, but also in sudden decay.

An attempt will be made to cross the Andean Cordillera and the Desert of Atacama along two different parallels where the contrasts in altitude are most marked and thus to study the distribution of people under extreme conditions of physical environment.

The last part of the field season will be spent in investigating the border of the Titicaca Basin and descending the Desaguadero River as far as possible towards Lake Poopó. The elevation of the ancient strand lines of Lake Minchin, which once occupied a part of the Bolivian high plateau, will be determined. The relations of this now vanished lake and Lake Titicaca have never been investigated and the key to the problem will be sought in the outlet of the Titicaca Basin. There, also,

must be sought the key to much of the early history of the Titicaca depression. The Tiahuanaco Valley and its celebrated ruins will be studied in relation to the supposed ancient levels of Lake Titicaca and the limits of food production in the valley to-day.

Professor Bowman's results will be published in preliminary form in the *Bulletin* of the American Geographical Society and in final form in a volume entitled "The Central Andes."

GLACIAL EXCURSION OF THE CANADIAN GEOLOGICAL CONGRESS

SEVERAL of the excursions, in connection with the twelfth International Geological Congress, held in Canada next summer, will go from Toronto to Vancouver. Then an excursion (C8 August 29 to September 22), under the leadership of R. G. McConnell, and with guidance of R. W. Brock, D. D. Cairnes, and W. W. Leach, will traverse the fiords of British Columbia, ascend the Skeena River valley from Prince Rupert to Aldermere by rail, visiting the silver-lead mines and coal mines, and continuing to Skagway by steamer. There will be stops at the copper mines on Portland Canal and the Treadwell gold mine on the Gastineau fiord at Juneau. The excursions will then cross the Canadian Coast Range by the White Pass and Yukon Railway to Whitehorse, stopping at the copper deposits there and the coal mines at Tantalus, descending the Yukon River to Dawson and the Klondike gold field in the driftless interior plateau near latitude 64° north.

After the return to Skagway an excursion, under the direction of Lawrence Martin of the University of Wisconsin, will be made, on a special steamer, to the Malaspina Glacier, Yakutat Bay, and Muir Glacier, where Russell Wright, Reid, Gilbert and Tarr have done world-renowned work. This glacial excursion will last five days, with a possibility of two days more in case of cloudy weather.

The first day will afford an opportunity of seeing the Fairweather and St. Elias Ranges, 16,000 to 18,000 feet high, and covered by snowfields and glaciers. These ice tongues include the La Perouse, Malaspina and many smaller glaciers. The front of the great piedmont ice sheet of Malaspina Glacier will be followed, affording an opportunity of seeing the tidal ice front of the Guyot lobe west of Yahtse River, the moraine-veneered ice cliff of the Seward lobe at Sitkagi Bluffs, and the forest-covered terminus of the Marvine lobe near Point Manby.

On the second day something will be seen of the eastern border of Malaspina Glacier in Yakutat Bay and the forested terminal moraine of the Yakutat Foreland. Landings will be made in Disenchantment Bay in connection with various glacial phenomena such as the shrub-covered ablation moraine upon the ice of Variegated Glacier, the streams engaged in carrying and depositing outwash gravels, the calving of icebergs from Hubbard and Turner glaciers, the cirque vacated by a fallen glacier, and the beaches, rock benches, sea cliffs and islands which were uplifted from 7 to 47½ feet during the earthquakes of September, 1899.

The third day will be spent on and near the Nunatak Glacier in Russell Fiord. Here the hanging valleys, the till-veneered, overridden outwash gravels, and the tidal, land-ending and cascading glaciers will be visited and studied, as well as the phenomena of glacial erosion in the barren area from which the ice has recently retreated and of fault scarps made during the 1899 earthquake. Some of these scarps are vertical and are 4½ to 8 feet high.

The fourth day will afford an opportunity of seeing the morainic and glacio-fluviatile phenomena about the terminus of the Hidden Glacier, which advanced 2 miles between 1906 and 1909, as a result of the earthquake avalanching in 1899 which has subsequently caused 9 ice tongues of Yakutat Bay to move forward. After this landing something will be seen of a fiord with submerged hanging valleys, submarine moraines, buried forests, shorelines depressed in 1899, and the high strand lines of a former glacial lake.

Part of the fifth day will be devoted to