of 238, and turned out 3,962 graduates, an average of 50. During the past few years, indeed, the medical schools rated in Class A have been filled almost to capacity.

The movement toward the building of larger teaching plants, including both medical schools and hospitals, continues. During 1925 and 1926 such enlarged plants have been established and partially completed at the Universities of Colorado, Columbia, Illinois, Ohio, Rochester (N. Y.), Vanderbilt, Western Reserve, Wisconsin, and Meharry Medical College. Those which are nearing completion or are partly occupied are of the Universities of Chicago, Northwestern, Tennessee, and the Detroit Medical College. Medical centers with more modern buildings erected nearer to teaching hospitals are being established by the medical schools of George Washington, Georgetown, and Howard Universities at Washington, D. C., and also by Temple University at Philadelphia.

Since 1912 most of the medical schools have limited their enrolments to the numbers which could be given a satisfactory training in medicine, depending on their varying space, equipment and hospital relations. This limitation of enrolments has reduced the attendance in few of the colleges formerly having unduly large enrolments. The capacity of all others remains the same or shows an increase.

The United States still has more physicians in proportion to its population than any other country. In 1925 there was one physician to every 753 people, while Great Britain reports (1921) one physician to every 1,087; Switzerland and Japan reported (1925) one, respectively, to every 1,290 and 1,359; Germany (1912) one to every 1,940; Austria (1912) one to every 2,120; Sweden (1925) one to every 3,500.

In the United States, as in other countries, there has been a tendency during recent years for physicians to locate in cities rather than in rural districts. There is not, however, a shortage of physicians, the problem being one of distribution.

SURVEY LINES OF THE U. S. COAST AND GEODETIC SURVEY

THE records of the Coast and Geodetic Survey show that the distance between its two surveying stations on Mt. Shasta and Mt. Helena, both in California, is 192 miles. This line was used in a survey extended along the 39th parallel to join the surveys and charts of the Atlantic with those of the Pacific coasts of the United States. The system of triangulation involved the measurement of a few lines across country with extreme accuracy by means of metal tapes or base bars. Each of these lines form the side of a triangle, the other sides are computed from this measured line by means of the angles of the triangles observed with high grade theodolites.

The line between Mt. Shasta and Mt. Helena could be used by reason of the employment of very large mirrors in the form of heliographs mounted on each of the stations. By means of the telescope of a theodolite the observer at one station could see, through his instrument, the reflected sunlight as a very dim star on the other peak.

Another long line in the survey across the country by the United States Coast and Geodetic Survey was between Mt. Ellen, Utah, and Uncompahgre Peak, Colorado, the distance being 182.7 miles. There are many lines in the surveys of the Coast and Geodetic Survey which are more than 100 miles in length between stations.

It has been found, in recent years, to be more efficient to use electric signal lamps in the place of heliographs. An ordinary auto headlight with an especially constructed bulb, with contracted filament, has been so effective as to enable the observer to see its light with the unaided eye for distances as great as 150 miles. The electric current used is supplied by ordinary dry cells, such as is used to ring door bells. It was only when the atmosphere was as clear as crystal that the visibility was so perfect. Ordinarily the atmosphere has some haze in it and then the lights do not appear so bright.

The distance that one can see from one part of the earth to another depends on the heights of the mountain peaks and the configuration of the intervening ground. The curvature of the earth is so great that at a very few miles it would be impossible for a man standing at the shore-line of a bay to see a man standing at the shore-line on the opposite side. Where there are deep broad valleys between mountain ranges, the greatest distances can be observed.

EXPLORATIONS IN BRITISH COLUMBIA

ROLLIN T. CHAMBERLIN, professor of geology at the University of Chicago, who with Mr. Allen Carpe, of New York, was the first to climb any of the major peaks of the Caribou range of British Columbia in 1924, has returned to the university after reaching the summits of three new peaks of th erange. Mr. Carpe, a prominent member of the American Alpine Club and one of the famous Mt. Logan expedition in 1925, again was Professor Chamberlin's companion this summer.

The new peaks climbed this summer were Kiwa, with an elevation of 11,400 feet; Mt. Welcome, with an elevation of 11,150 feet, and Mt. Goodell, 10,450 feet high. Kiwa was named for a creek which has its origin in the range, and Goodell was named for "Slim"

Goodell, a packer and trapper of the region, who was a member of the expedition.

To reach the new peaks, Professor Chamberlin and Mr. Carpe back-packed their equipment up grizzly and caribou trails sixteen miles to the end of the Kiwa Glacier. After they had established a camp at an elevation of 4,700 feet, they had considerable difficulty in surmounting two crevassed ice-falls. Several days were required to find a route over which they could pack sleeping-bags and food to a bivouac above the second ice-fall. From this base they climbed Kiwa Peak in five hours, in an interval between heavy snowstorms.

Part of the climbing on Kiwa Peak was done on a snow slope with an angle of 47 degrees, up which every step had to be cut. A part of the descent of Mt. Goodell could be accomplished only by digging out steps, and the two explorers were in imminent danger of snowslides. They spent seventeen days in the mountains, storms and cloudy weather often interfering with their work.

Until the 1924 expedition of Professor Chamberlin and Mr. Carpe, little was known of the range, the locations on the maps differing greatly. Exploratory efforts made by the late Professor E. W. D. Holway, botanist of the University of Minnesota, and Dr. A. J. Gilmour, of New York, in 1916, were rendered unsuccessful by weather conditions. Professor Chamberlin's successful trip in 1924 definitely located the range, which is separated from the Rockies on the east by that part of the Rocky Mountain Trench occupied by the Fraser and McLennan Rivers.

During his exploration of the peaks this summer, Professor Chamberlin gathered data concerning glacial movements which are said to be of considerable interest to geologists.

THE USE OF HUDSON'S STRAITS FOR NAVIGATION

AN important expedition, according to the daily press, has been sent out by the Canadian government, which left Halifax recently for Hudson's Straits. The purpose of this expedition is to investigate the practicability of the use of the Hudson's Straits for navigation for commercial purposes.

Various interests in western Canada that are behind the construction of the Hudson's Bay Railway, the establishment of grain shipping ports on the shores of Hudson's Bay, and a direct sea route to Europe, demanded that such an expedition be sent out to ascertain whether navigation of the Straits can be maintained throughout the year. The expedition is well fitted out to determine over a period of sixteen months exactly what the conditions within the straits are; whether they are closed by ice to such an extent that they will not be practicable for the world's commerce, or whether they are open and can be made a commercial avenue with proper navigation aids, such as lights, buoys, wireless stations, lighthouses and air stations.

The expedition is under the command of Major M. B. McLean, formerly assistant superintending engineer of the St. Lawrence Ship Channel. The personnel numbers about fifty, including three squadrons of the Royal Canadian Air Force, and also full equipment for three wireless stations. These stations are expected to keep the expedition in hourly touch with Ottawa during the whole time the expedition is employed at their work.

The expedition is also provided with a moving picture photographer, under contract with the Federal government, with instructions to film the entire expedition from start to finish. The biological board also sends a representative to make comprehensive study of fisheries.

The expedition sailed in two ships, the Canadian government ship *Stanley*, an ice-breaker, thoroughly reconditioned for her work, and the freighter *Larch*, which carries a cargo of equipment and apparatus which is said to have cost over $1,000,000. Three base stations will be established, one near Port Burwell at the eastern entrance of the Straits, another at Nottingham Island at the western entrance of the Straits, and another halfway between, which will be situated on the north shore of the Straits.

Each station will consist of seven buildings—two dwellings, two hangars, one power-house and two storehouses. There will be two Fokker one-engine airplanes at each station, and the *Stanley* carries a small plane, a *Moth*, for scouting work to locate the sites for the stations. These buildings were all constructed in Halifax and placed aboard the ships ready to be erected as soon as the expedition arrives at its various bases. The supplies which accompany the expedition include 450 tons of coal and 100 tons of food supplies.

LECTURES ON SCIENCE

THE program of public lectures for 1927–1928 given by the Rochester Section of the American Chemical Society follows:

October 3—*Some separations, old and new, by the ionic migration method:* DR. J. KENDALL, New York University, New York.

October 17—Subject of lecture not announced: DR. C. NOLLER, Eastman Kodak Company, Rochester.

November 7—*Medicinals and pharmaceuticals:* DR. A. S. BURDICK, Abbott Laboratories, Chicago.

November 21—MR. E. G. MINER, Pfaudler Company, Rochester.