Massachusetts, New York and Illinois. In each of these states is at least one great city center of commerce and industry. Had this fact any influence upon the position of these three states? In order to answer this question, the consecutive names of 2,000 native-born persons were taken at random.[2] Among this 2,000, 549 were born in cities of more than 100,000 population, and 1,365 are now resident in these cities. The figures for New York, Chicago, Philadelphia, Boston and Washington show 317 born in these cities, and 791 now resident. The figures for New York, Philadelphia, St. Louis, San Francisco, Washington, Baltimore and Chicago show 355 born and 851 now resident. The proportion absorbed by the larger cities is not, on the whole, greater than the proportion absorbed by urban as opposed to rural life.

One thing the figures show conclusively, that there has been a marked movement of distinguished persons from the northeastern section of the United States to that section west of the Mississippi and particularly that section included in the Pacific and Mountain states. City life is in no large sense responsible for this movement. It is evidently a logical reaction to the wide range of opportunity which the west affords.

SCOTT NEARING

SCIENTIFIC NOTES AND NEWS

DR. MAX PLANCK, professor of physics at Berlin, and Professor Hugo von Seeliger, director of the Munich Observatory, have been made knights of the Prussian order pour le mérite. Dr. Ramón y Cajal, professor of histology at Madrid, and Dr. C. J. Kapteyn, professor of astronomy at Gröningen, have been appointed foreign knights of this order.

M. GEORGES VAN BIESBROECK, Dr. Ing., adjunct astronomer at the Royal Observatory of Belgium, situated at Uccle, has joined the staff of the Yerkes Observatory, University of Chicago, for the academic year 1915–16, with the title of visiting professor of practical astronomy. His work will be chiefly devoted to double stars and to the regular program of determining stellar parallaxes from photographs made with the 40-inch refractor.

[2] They started with I. F. Merrifield, and ended with H. W. Ranger.

THE second Pan-American Scientific Congress, which will meet in Washington, December 27, 1915, and adjourn January 8, 1916, will be divided into nine sections, which, with their chairmen, are as follows: Anthropology, William H. Holmes; Astronomy, Meteorology and Seismology, Robert S. Woodward; Conservation of Natural Resources, George M. Rommel; Education, P. P. Claxton; Engineering, W. H. Bixby; International Law, Public Law and Jurisprudence, James Brown Scott; Mining and Metallurgy, Economic Geology and Applied Chemistry, Hennen Jennings; Public Health and Medical Sciences, William C. Gorgas; Transportation, Commerce, Finance and Taxation, L. S. Rowe.

DR. THEOBALD SMITH, head of the division of comparative pathology of the Rockefeller Institute for Medical Research, should be addressed at Princeton, N. J., after October 1.

DR. RICHARD PEARSON STRONG is returning to this country from Servia to resume his position as professor of tropical medicine in Harvard Medical School.

DR. SEISHU KENOSHITA, professor of gynecology and obstetrics in the Imperial University, Tokyo, Japan, has been designated by the government to make an extensive tour and study of American hospitals.

NEWS has been received of the safe return of Vilhjalmar Steffanson, who has been conducting a Canadian expedition to the far north. He expects to spend two more years in exploration.

DR. STOCK, professor of chemistry at Munich, has been appointed a member of the Kaiser Wilhelm Institute for Chemistry at Dahlem.

DR. ELISHA H. COHOON has been appointed administrative head of the psychopathic department of the Massachusetts State Hospital, at Boston. Dr. E. E. Southard, who has been director of the institution for a number of years, will be relieved of his administrative duties, but will retain the title of director and

will have charge of the scientific research laboratories of the hospital.

Dr. Thomas B. Shea, Boston, has been appointed chief of the medical division of the department of health. Dr. H. Mulloney, formerly a member of the Boston Board of Health, has been appointed a deputy health commissioner. Dr. Francis H. Slack, formerly secretary of the board of health, has been made deputy in the bacteriologic department.

F. L. Drayton has been appointed assistant botanist at the Canadian Experimental Farms, and George W. Muir, assistant animal husbandman at the Nova Scotia Agricultural College. J. A. Sinclair has succeeded J. Standish in the veterinary department, and C. A. Good has been appointed assistant entomologist.

Dr. Friedrich Hildebrandt, formerly professor of botany at Freiburg, has celebrated his eightieth birthday.

The Weber-Parkes prize of the Royal College of Physicians for 1915 has been awarded to Dr. Noel Dean Bardswell.

A. Müller, of Berlin, who has perfected the accumulator used in submarine boats, has been made doctor of engineering by the Technical School of Hanover.

A bronze bust of the late Dr. S. Weir Mitchell has been presented by Mr. and Mrs. Walter D. Ladd to the Jesup Memorial Library in Bar Harbor.

Dr. Edward Nelson Tobey, of St. Louis, was a passenger on the fruit steamer *Marowijne,* which has not been heard from since August 13, and is believed to have been wrecked by a hurricane in the Gulf of Mexico or the Caribbean Sea on that date. Dr. Tobey was one of the medical party sent by the St. Louis University to British Honduras at the beginning of the summer. He was a lecturer in the medical department of the university and an assistant city bacteriologist.

Charles Hallet Wing died on September 13 in his eightieth year. He was born in Boston and was graduated from Harvard College. In 1870 he became professor of chemistry at Cornell University, from which place he went in 1874 to Boston to accept a like position at the Massachusetts Institute of Technology, where he remained for ten years.

John E. Sinclair, professor emeritus of higher mathematics at the Worcester Polytechnic Institute, died on September 12. He was born in 1838 and attended the Exeter Latin School and later the Chandler School at Dartmouth College. After he was graduated he went to Adrian, Mich., to teach, and later to St. Louis, Mo. In 1863 he returned to Dartmouth as professor of mathematics and was awarded the degree of Ph.D. there. In 1869 he went to Worcester Polytechnic Institute as professor of higher mathematics, from which position he retired six years ago as professor emeritus.

Professor B. Fischer, director of the hygienic laboratory of the University of Kiel, has died in one of the military hospitals at the age of sixty-three years.

Professor M. Rothmann, of Berlin, died on August 12, aged forty-seven years. He is known for his work on the localization of brain functions and was responsible for the establishment of the anthropoid station in Teneriffe.

G. Cattaneo, for half a century professor of surgery at the University of Pavia, has died at the age of eighty-three years. He bequeathed most of his property to found an institution there for treatment of the maimed and crippled.

As a piece of constructive work in conservation, the New York State College of Forestry, at Syracuse, has begun this summer an ecological survey of Oneida Lake. Special attention will be given to the fishes. Oneida Lake has an area of 81 square miles, a maximum depth of 55 feet, a length of 21 miles and an average width of about 6 miles. It has a large area of shallow water, is bordered by extensive swamps, abounds in fish, and a state fish hatchery is located on it at Constantia. Mr. Frank C. Baker, recently acting director of the Chicago Academy of Science, a well-known specialist on molluscs, will study the relation of molluscs to the feeding and breed-

ing grounds of fish, and Professor T. L. Hankinson, of the Eastern Illinois Normal School, Charleston, Ill., will with Dr. Charles C. Adams, of the College of Forestry, investigate the ecology of the fish.

A COOPERATIVE plan for the study of the underground waters in the southeastern corner of Montana under an area of about ten thousand square miles has been arranged by O. E. Meizner representing the U. S. Geological Survey, with the chemical department of the Montana State College and the chemical laboratory at the college which does the work for the Montana board of health. Under the arrangement the field work will be done by the geological survey and the analyses amounting to about two hundred will be done by the State College and the board of health under the direction of Professor W. M. Cobleigh. The work is to be completed by July 1, 1916. The study deals with the mineral content of the waters only and is of importance both to the agricultural interests of the state and to the public health as affecting the matter of domestic water supply.

DR. LUCY L. W. WILSON, head of the department of nature study and geography of the Philadelphia Normal School, excavated this summer at the prehistoric site called Otowi, New Mexico, for the Philadelphia Commercial Museums, of which her husband, Dr. W. P. Wilson, is the director. She has returned with a fine collection of prehistoric pottery including a dozen unbroken bowls, about thirty bowls of which all of the pieces have been secured, and forty pieces of pottery of which at least half is intact. Every type of pottery is represented, including even a small piece of very ancient basket ware, a whole bowl of incised ware, some coiled ware, plenty of the biscuit, the hard "black and white," and the glazed patterns. Many clay food bowls, ollas, tinajes, ceremonial bowls and ceremonial pipes were found. A potter's outfit was dug out, consisting of balls of red and white clay, mica clay (for cooking pots), smoothing stones, shaping stones and paint pots. A great quantity of stone ware was excavated, much of which has been left *in situ*, although a good collection of domestic and hunting utensils and implements has been shipped to the museum. Over fifty skeletons were disinterred, but all except fifteen were reburied, chiefly because they were not in good condition. The most important find was a "basket-burial" in a room underneath the floor. On the body were many ceremonial objects—two rain sticks and about a dozen prayer sticks. The feet were in a glazed bowl. The mouth was full of corn and cobs of corn were on the face, the neck, the chest. A dozen ceremonial pipes and a small copper pendant were found in the same room. Another unusual burial was that of a child in a bowl with a couple of clay playthings near by. Most of the adults were buried in the usual reflexed position with the face toward the west. Two skeletons, however, were found face down. One of these had a long ceremonial pipe of serpentine in his mouth.

WE learn from *Nature* that the Royal Society is compiling a register of scientific and technical men in Great Britain and Ireland, who are willing to give their services in connection with the war. The register will be classified into subjects, and will ultimately constitute a large panel of men of standing, whose services will be available whenever any government department or similar authority requires specialist assistance. The register is being coordinated with those independently compiled by other societies and institutions, but the Royal Society would be glad to have applications for forms from such members of the staffs of colleges and technical institutions as have not yet been registered by any society. The Royal Society is also drawing up, with the cooperation of the principal societies and institutions, a list of scientific and technical men actually on active service in the army and navy.

THE medical secretary of the British Medical Association has made a report on the medical war register and the work hitherto done by the committee, according to which the physicians in England, Wales and Ireland are distributed as follows:

1. The number of men already on whole-time war service (total, 5,265).

2. The number of men of 50 years of age and over offering whole-time war service (total, 447).

3. The number of men from 40 to 49 offering whole-time war service (total, 436).

4. The number of men of 40 and under offering whole-time war service (total, 633).

5. The number of men of 40 and under not on whole-time war service, nor offering to undertake it (total, 6,555 up to date).

From these figures it will be seen that there are approximately 6,555 men of military age not at present engaged in war service; of these the services of about one third are said to be needed.

The Berlin correspondent of the *Journal* of the American Medical Association reports that the Kaiser Wilhelm Institute for the Study of the Physiology and Pathology of the Workingman has now begun its work. Researches will be made in the physiology, pathology and hygiene of labor (work), the mental and physical welfare of the workingman. The relationship of labor to the age of the workingman, the sex, the race, nourishment, environment, clothing, etc., will be investigated. The physiologic chemistry department will investigate particularly the physiology of nutrition in order to determine the influence of food on the working capacity of the workingman and the influence of alcohol on muscle energy. The statistical division will approach the question from another point of view including a study of food and food elements, animal as well as vegetable, the size of a family as bearing on the nutrition, the difference in eating in the city and in the country among the poor and among the rich. The psychologic division will investigate the influence of labor in its relationship to psychathenia, etc. The work done by others in similar fields will place these studies on a definite basis. The well-known Taylor system has done much to further these studies; for instance, it is known that severe physical labor causes the blood to leave the viscera and appear in increased quantity in the extremities. Physical tire, on the other hand, produces the opposite. Therefore deleterious effects may be prevented by regulating the work either by frequent periods of rest or by changing the kind of work so that other muscle groups may be brought into play. It is the aim of the institute to investigate all the phases of this question thoroughly so that the results may prove beneficial to the workingman as well as to his employer. Tuberculosis will come in for a large share of study, especially with regard to the etiologic relationship of poor housing conditions in the cause and spread of tuberculosis. The alcohol question, female and child labor, etc., will be investigated.

The finest and most accurate maps of the United States are those made by the United States Geological Survey. This branch of the government service prints more than 3,000 maps a day, or about a million a year, most of which are sold to the public directly from Washington. Book and stationery concerns in the larger cities of course handle these maps, but heretofore there has been no way in which the inhabitants of the small towns throughout the country could get them except by sending to Washington. Now, however, postmasters in towns and villages have the permission of the Post Office Department to handle these maps. When the Geological Survey prints a new map it sends a sample copy to the postmasters in the area covered, with the suggestion that they tack it up in a conspicuous place, where everyone calling for mail can see it, and order a small stock for sale to those who wish to buy the map. This saves the purchaser the annoyance of sending to the Geological Survey and waiting until the map is received from Washington and also saves the expense of postage. The postmaster himself receives a small commission on each map sold. Many active postmasters are handling the maps, and that their fellow-citizens appreciate the accommodation of being able to buy government maps at the post office is shown by the number sold in this way. The record of maps so sold shows that a postmaster in Minnesota heads the list so far, having sold 125 maps the first month he handled them. Only postmasters in regions that have been recently mapped have been asked to handle the maps,

but the Geological Survey willingly answers inquiries made by other postmasters, sending them a sample copy of the map that covers their district, if it has been mapped. It is believed that this new plan of distributing the government maps will benefit all concerned; it will be a convenience to the purchasers, it will bring the postmasters a small commission, and it will increase the sale of the maps.

THE registrar-general for England and Wales has issued his return relating to the births and deaths in the second quarter of the year, and to the marriages in the three months ending March last. From a report in the *British Medical Journal* we learn that the marriage-rate during that period was equal to 12.0 per 1,000, which was 0.8 per 1,000 more than the mean rate in the corresponding periods of the ten preceding years. The 213,094 births registered in England and Wales last quarter were equal to an annual rate of 22.9 per 1,000 of the population, estimated at 37,302,983 persons. This rate is 3.3 per 1,000 below the mean rate in the ten preceding second quarters, and is the lowest rate recorded in the second quarter of any year since civil registration was established. The birth-rates in the several counties last quarter ranged from 16.0 in Sussex, 17.0 in Somerset, 17.1 in Westmorland and 17.3 in Cardigan, to 27.2 in Stafford, 27.3 in Carmarthen, 27.5 in Northumberland, 28.3 in Glamorgan, 28.5 in Monmouth and 30.8 in Durham. The excess of births over deaths last quarter was only 74,515, against 102,293, 105,727 and 101,933 in the second quarters of the three preceding years. From a return issued by the board of trade it appears that between the United Kingdom and places out of Europe the arrivals of persons stated to be of British nationality exceeded the departure by 8,583 persons, while the numbers of aliens leaving exceeded those arriving by 431. The balance of the aggregate passenger movement in the quarter to and from all countries was 6,580 inward. The 138,579 deaths registered in England and Wales during the quarter under notice were equal to an annual rate of 14.9 per 1,000, against an average rate of 13.7 per 1,000 in the corresponding quarter of the ten preceding years. The death-rates in the several counties last quarter ranged from 11.2 in Middlesex, 12.0 in Essex and in Rutland, 12.4 in Berkshire, and 12.5 in Buckinghamshire and in Dorset, to 17.2 in Cumberland, 17.3 in Montgomery, 17.7 in Durham, 17.8 in Denbigh, 18.3 in the North Riding of Yorkshire and 18.4 in Cardigan. The 138,579 deaths from all causes last quarter included 311 which were attributed to enteric fever, 6 to smallpox, 6,724 to measles, 590 to scarlet fever, 2,589 to whooping-cough, 1,176 to diphtheria and 1,496 to diarrhea and enteritis among children under 2 years of age. The mortality from measles was nearly double the average, and that from diphtheria was slightly above the average; from scarlet fever and whooping-cough the mortality was slightly below the average, and that from enteric was 40 per cent. below. The rate of infant mortality, measured by the proportion of deaths among children under 1 year of age to registered births, was equal to 97 per 1,000, which was 2 per 1,000 above the mean rate in the ten preceding second quarters.

STATISTICS compiled under the supervision of J. D. Northrop, of the United States Geological Survey, show that the quantity of natural gas commercially utilized in the United States in 1914 exceeded that so utilized in any previous year in the history of the natural gas industry. The quantity produced, which amounted to approximately 591,866,733,000 cubic feet, valued at $94,115,524, constitutes a new record of production exceeding by nearly 10 billion cubic feet, or almost 2 per cent., the former record, established in 1913. Increases in output in 1914 over 1913 were credited to New York, Ohio, Oklahoma, Texas, Louisiana-Alabama, Iowa and California, the state last named alone recording a gain of nearly 7 billion cubic feet. Other gas-producing states recorded declines in output the greatest of which, that of Pennsylvania, amounting to slightly more than 10 billion cubic feet. The increases in gas production may be attributed to various causes—in New York to the in-

creased drilling activity stimulated by the advancing petroleum market in 1913 and the early part of 1914; in Ohio to local extensions of the productive fields of the gas belt in the central part of the state and to the development of an important gas pool in the vicinity of Cleveland, Cuyahoga County; in Oklahoma to the development of gas reserves in the Cushing field, Creek County, and the Healdton field, Carter County, as well as to a decided expansion of the local casinghead gasoline industry; in Texas to a greater utilization of the gas supplies available in the Petrolia and Mexia fields; in Louisiana to the greater development of the gas reserves in Caddo and De Soto parishes, and in California to increased demands for domestic consumption in Los Angeles and adjacent towns in the southern part of the state as well as for industrial consumption in the casinghead gasoline industry. Of the record-breaking production of natural gas credited to 1914 it is estimated that the total of 203,104,358,000 cubic feet, about 34 per cent., was supplied to domestic consumers at an average price of 28.04 cents a thousand cubic feet and that 388,762,375,000 cubic feet, the remaining 66 per cent., was supplied to industrial consumers at an average price of 9.56 cents a thousand cubic feet. During the last four years the ratio of domestic to industrial consumption has varied but slightly. Formerly, however, a relatively greater proportion of the annual yield was supplied to industrial consumers.

The Alaskan Engineering Commission, which is to build the government railroad from Seward on the Pacific 471 miles to Fairbanks in the interior, has received a permit from the Forest Service to cut 85 million feet of timber in the Chugach National Forest for use in constructing the new line. The permit was issued by the district forester at Portland, Oregon, who has direct supervision of the Alaskan forests, and is in conformity with the Act of March 4, last, which authorized the Secretary of Agriculture to permit the Alaskan Engineering Commission and the Navy Department to take from the national forests free of charge earth, stone and timber for use in government works. The timber will be cut in designated areas along the right-of-way of the proposed railroad, which runs through the Chugach National Forest for several miles. Experiments and tests of Alaskan spruce and hemlock are being made at the Forest Service Laboratory at Seattle, Washington, and so far have substantiated the opinion of foresters that Alaskan timber is sufficiently strong for practically all structural purposes. While these tests are going on Forest Service employees in Alaska are marking the timber to be cut along the proposed railroad, the cutting to be done so that only mature trees are taken, the young trees being left uninjured and the condition of the forest improved. This cut of 85 million feet will be the largest amount of timber ever felled on the Alaskan forests in one operation, and at the average rate per thousand board feet obtained for timber sold from the Chugach forest during the fiscal year 1914, it is worth approximately $145,000 on the stump. It will be nearly twice as much as the total quantity of national forest timber now cut and used annually for local purposes throughout Alaska, but only a little more than one tenth of the estimated annual growth of the Alaskan forests. The two national forests of Alaska contain about 78 billion feet of merchantable timber and it is estimated by the Forest Service that more than 800 million feet could be cut every year forever without lessening the forests' productivity.

The output of bituminous coal in the United States for the first six months of 1915 is estimated by C. E. Lesher, of the United States Geological Survey, to be between 180,000,000 and 190,000,000 short tons, the rate of production having been from 85 to 90 per cent. of the average for the previous year. Thus the bituminous coal production during this six-months' period has been considerably less than for the corresponding period in 1914, and is little, if any, greater than the output during the last half of that year. The rate of production this year decreased after January,

reached low ebb in March and April, and is now on the increase. The states west of Mississippi River, which in 1914 produced less than 13 per cent. of the total, do not appear to have suffered from this decrease as much as the eastern states—reports from certain districts in the west showing an increase over 1914. This is attributed to the increase in metal mining and smelting, and to greater railroad activity. In the east the loss of bunker trade on the Atlantic seaboard and the slowness of the Lake season have been only partly offset by the increasing coal exports. The recent activity in the iron business has been slow to affect the coal trade, although coke has gained considerably during the last two months and for the rest of 1915 the increased output should continue. The anthracite producers have fared better than the soft coal operators, since it is estimated that the output of anthracite has fallen off only from 3 to 5 per cent. below the average for 1914.

THE portion of the National Forest receipts for the fiscal year 1915 to go to the benefit of the various states in which the forests lie, according to the computation of the forest service just approved by the secretary of the treasury, amounts all told to more than $850,000. The gross receipts for the year ending June 30 were $2,481,469.35, of which under the law 25 per cent. is paid over to the states for county school and road purposes and an additional 10 per cent. is made available for expenditure by the secretary of agriculture in building road and trails for the benefit of local communities. Montana gets the largest share, having contributed the largest amount of receipts for the sale of timber, grazing and other uses of the forests, or more than $318,000. Of this amount, Montana is to receive $79,589.78 for county school and road purposes, while the forest service will expend $31,835.91 for improvements of special benefit to local communities and not included in the regular administrative and protective improvements. Idaho comes second with a 25 per cent. allowance of $75,651.15 and a 10 per cent. fund of $30,260.46. California is third, receiving a 25 per cent. allowance of $67,611.87 and a 10 per cent. fund of $27,044.74. The total amount to be expended under this system of sharing the forest receipts with the states to make up for the loss of local taxes due to public ownership of the land is about $16,000 greater than for the previous fiscal year, as the receipts for the fiscal year 1915 exceeded those of the previous fiscal year by about $44,000. The provision of law under which a portion of the receipts is turned over to the states dates from 1906, and the total payments reach, with this year's allotment, nearly $4,500,000. The ten per cent. provision for government-built public roads has been in force only since 1912, and has now made available for this purpose an aggregate of $926,000.

UNIVERSITY AND EDUCATIONAL NEWS

THE Southern Methodist University, Dallas, Texas, begins its initial session September 22. This is a coeducational institution under the auspices of the Methodist Episcopal Church South. The assets of the university in grounds, buildings and endowment amount to about one million and seven hundred thousand dollars. This university is to become the head of the southern Methodist colleges west of the Mississippi River. An active campaign is now being waged for an additional million dollars. The following appointments have been made on the scientific staff: Robert S. Hyer, A.M., LL.D., professor of physics; Frederick M. Duncan, Ph.D., professor of biology; John Henry Reedy, Ph.D. (Yale), professor of chemistry; Ellis W. Shuler, Ph.D. (Harvard), associate professor of geology.

PLANS have been approved by the board of regents of the University of Nebraska for a new hospital in connection with the College of Medicine at Omaha. The building is to be five stories in height and will have six wards of sixteen beds each, three receiving rooms, six groups of isolation rooms of three beds each, and the necessary operating rooms, operating amphitheater, and rooms for administration and service.