

tained on the visit made during the American Association for the Advancement of Science meetings to the lead pipe works in St. Louis, gave a complete view of the lead industry, from deposits disseminated in the Third Magnesian Limestone to the finished product, to be disseminated eventually throughout the homes and shops of American cities. A dozen mines a score or two miles from the old mine LeMotte, famous in the history of lead mining in the Mississippi valley are being worked by modern methods. Companies of large capitalization are able to mine and mill successfully in a region where the individual could not afford to work, and the annual production is now measured by millions of dollars. At the St. Joe Mine a depth of 350 feet has been reached, and the workings extend about two miles from north to south. One chamber is about 130 feet in length, and furnished ore throughout its entire distance. The mines are in the Bonne Terre or lower division of the Third Magnesian Limestone—a shaly magnesian limestone about 500 feet thick, which rests on Potsdam sandstone, and is overlaid by the Potosi, or upper member of the group. The size and perfection of the concentrating and milling plants were a surprise to the visitors. Two mills were visited, each of which has a daily capacity of 1,500 tons.

Some of the party took a side excursion to Pilot Knob and Iron Mountain. The character of the iron formations reminded the visitors of similar formations in the Lake Superior region.

From the eastern region the company were taken four hundred miles to Joplin and Webb City, where sub-Carboniferous zinc and lead deposits and the treatment of their ores occupied the attention for a day. A few of the eight hundred mines in the region were not visited. The two which were examined gave an idea of the remarkable richness of the region, and explained the prosperous condition of the cities in southwestern Missouri. Picturesque names are not confined to the far west. The 'One Gallus Mine' shows such deposits of sphalerite as to make the most thorough pessimist forget his position. This region is still favorable as a 'poor man's dig-

gings.' With almost no capital, a man can lease a plot of ground and start in to make his fortune. Yet improved methods and well-equipped mills are seen on every hand, and have as a result the addition of several millions of dollars' worth of lead and zinc to the wealth of the country.

The excursionists were shown unlimited hospitality by various organizations in the regions visited, and by five railroad companies, which not only carried the party nearly a thousand miles, but furnished extra engines and held an important train in order that our delayed car could be attached.

The value of the trip was enhanced by the unending courtesy of our 'English-speaking guides,' Drs. Shepard, Wheeler and Buckley, who were ever ready to answer questions and point out facts of interest.

The excursion was due to the enterprise of the state geologist, Dr. Buckley, to whom the visitors are under very pleasant and great obligations for the increased knowledge which they have of the geology of the remarkable lead and zinc deposits of Missouri.

A. R. CROOK.

NORTHWESTERN UNIVERSITY.

SCIENTIFIC NOTES AND NEWS.

THE Lalande prize in astronomy has been conferred upon Director W. W. Campbell, of the Lick Observatory, by the Paris Academy of Sciences.

THE Gold Medal of the Royal Astronomical Society of London has been conferred upon Professor George E. Hale, director of the Yerkes Observatory, for his researches in solar and stellar physics.

WE understand that at its recent meeting the executive committee of the Carnegie Institution adopted the recommendation of the biological committee to establish a Department of Experimental Biology and to call Professor C. B. Davenport, of the University of Chicago, to the charge of it. The work of the department will include at present, among others, a station for Experimental Evolution at Cold Spring Harbor, Long Island, on land granted by the Wawepex Society, and a Tropical Marine Biological Station at the Dry

Tortugas. Dr. Davenport is proposed as director of the former station and Dr. Alfred G. Mayer, of the Museum of the Brooklyn Institute of Arts and Sciences, as director of the latter station. Fuller details are promised as the plans of the department progress.

PROFESSOR KARL SCHLEICH, of Berlin, has received from the University of Würzburg a medal and a 1,000 Mark prize for the discovery of a method of making surgical operations painless by what he calls the 'Infiltrationsanæsthesie.'

THE University of Giessen has conferred its honorary doctorate on Herr Hermann Strebel, of Hamburg, for his work in zoology and Mexican archeology.

A PORTRAIT of Dr. Robert Fletcher, editor of the *Index Medicus*, will be presented to the Library of the Surgeon General's office, Washington.

PROFESSOR CHANTEMESSE, professor of experimental and comparative pathology at the University of Paris, has been appointed to succeed the late Professor Proust as general inspector of the French Sanitary Service.

PROFESSOR W. F. M. GOSS, of Purdue University, who has been engaged for some time in testing locomotives, has been granted \$5,000 by the Carnegie Institution to carry on the work.

PROFESSOR JOSIAH ROYCE, of Harvard University, will give the following lectures at Columbia University at 4:30 p.m.

February 1, 'The Comparative Study of Scientific Concepts.'

February 2, 'General Survey of Certain Fundamental Concepts of Science; (1) Classes and Classification, (2) Relations and their Types, (3) Ordinal Concepts and Ordinal Series.'

February 8, '(4) Concepts of Transformation, (5) Concepts of Levels.'

February 9, 'Application of the Survey to Various Special Problems.'

February 15, 'Philosophical Consideration suggested by the Survey.'

DR. W. M. BAYLISS is giving a course of ten lectures on 'Enzymes and their Actions,' at University College, London.

The Sibley Journal of Mechanical Engineering has published a memorial number in honor

of the late R. H. Thurston. It contains a biographical notice by William Kent; an appreciation entitled 'Our Friend,' by John H. Barr; an article entitled 'Dr. Thurston's Work in Sibley College,' by H. J. Ryan and R. C. Carpenter; an article entitled 'The Literary Work of Dr. Thurston,' by H. Diederichs; and a partial list of papers by Dr. Thurston.

THE steamship *Princess Irene*, bringing the remains of James Smithson, arrived in New York on January 20. These were transferred to the *Dolphin* of the U. S. Navy and taken to Washington. They have been deposited in the Smithsonian Institution until arrangements can be made for suitable burial in the grounds of the institution and the erection of a monument. As readers of SCIENCE know, the remains were brought to this country by Dr. A. Graham Bell, at whose instance the regents arranged for the removal, owing to the fact that the English cemetery at Genoa in which Smithson was buried was to be abandoned.

THE Rev. George Salmon, F.R.S., provost of Trinity College, Dublin, and eminent for his mathematical publications, died on January 22 at the age of eighty-five years.

WE regret also to record the death of Dr. Wilhelm Behrens, professor of botany at Göttingen.

THE sum of four thousand dollars has been granted to the Lick Observatory by the Carnegie Institution for the employment of assistants in the year 1904, in continuation of the grant of an equal sum for the year 1903.

THE daily papers report that Professor A. H. Phillips, of Princeton University, has extracted radium from carnotite, an ore found in Utah, and that an abundant supply of this ore exists.

THE observing station of the D. O. Mills expedition to the southern hemisphere, from the Lick Observatory of the University of California, was completed in October. It is located on the summit of San Cristobal, a hill 1,000 feet high in the northeast suburbs of Santiago, Chile. The elevation of the plain on which Santiago is built is about 1,800 feet above sea level. The principal item of equip-

ment consists of a large Cassegrain reflecting telescope with clear aperture of $36\frac{1}{2}$ inches; a modern three-prism spectrograph; a thirty-foot Warner & Swasey steel dome, and office buildings. Spectrograms had been secured by November 1 for determining the radial velocities of twenty-five or more stars. It is expected that results will rapidly accumulate, as the equipment is devoted to this purpose exclusively. The station is in charge of Acting Astronomer William H. Wright of the Lick Observatory staff, who is assisted by Dr. Harold K. Palmer.

SR. FRANCISCO M. RODRIGUEZ, director of the Museo Nacional, City of Mexico, reports several interesting discoveries of ancient remains in the valley of Mexico. In the southeastern part of the valley, a number of hieroglyphic inscriptions cut in the rock have been found. In the southwestern part of the valley Mr. Rodriguez has discovered the remains of ancient habitation sites in nearly a score of places, and also rock inscriptions which seem to date back to a remote epoch. The museum authorities have plans for the removal to the museum of the famous tablets at the ruins of Palenque.

A DESPATCH from Yakutsk, eastern Siberia, dated January 15, says that boatmen of the expedition commanded by Lieutenant Kolchak had arrived there and reported that the efforts of the expedition to find Baron Toll on New Siberia and Bennett Islands, in the Arctic Ocean, have been unsuccessful. Baron Toll left documents on Bennett Island showing that he turned southward on November 8, 1902.

THE president of the British Board of Agriculture and Fisheries has appointed a departmental committee to inquire into and report upon the present position of fruit culture in Great Britain, and to consider whether any further measures might with advantage be taken for its promotion and encouragement. Mr. A. G. Boscawen is chairman and Mr. Ernest Garnsey secretary of the committee.

UNIVERSITY AND EDUCATIONAL NEWS.

THE will of the late Charles F. Doe, a lumber manufacturer of San Francisco, bequeaths about one fourth of his estate to the Uni-

versity of California for a library. The university will receive over \$500,000.

TOWARDS the fund being raised by the senate of the University of London for the proposed Institute of Medical Sciences, Mr. Butlin, the dean of the Faculty of Medicine, has contributed £1,000, and Sir William Church, president of the Royal College of Physicians, and Mr. Tweedy, president of the Royal College of Surgeons, £100 each.

ASSEMBLYMAN DAVIS of the Committee of Public Education has introduced in the assembly of New York State a bill providing for educational unification and the reorganization of the Board of Regents. The bill provides that the secretary of state shall draw nine names from a box containing the names of the present Board of Regents, and the persons thus indicated shall constitute the Board of Regents, serving for from one to nine years. Thereafter one regent is to be elected each year, to serve for a period of nine years. They are to elect a commissioner of education, to serve during the pleasure of the board, at an annual salary of \$7,500 a year. He shall perform the duties now devolving upon the superintendent of Public Instruction and the secretary of the board of regents, both of whose offices are abolished. The first commissioner is to be elected by the legislature. Neither the state superintendent nor any member of the Board of Regents, nor any employee or appointee of either shall be eligible.

GOVERNOR ODELL has sent to the senate the report of the director of the New York State School of Forestry and a letter from President Schurman of Cornell University. In his letter President Schurman states that Governor Odell's recommendation that the experimental work be resumed subject to the condition that the state assume liability for the contracts that Cornell University has already entered into, is acceptable. The university is willing to acquiesce to a discontinuance provided it is protected against any liability on contracts which as agent of the state it has made in connection with the operation of the school.