

underlying the surface were replaced by common salt with a specific gravity of 2.10 or 2.20, the effect on the intensity of gravity might be observable. If a still heavier mass made up of salt, dolomite, igneous rock, etc., having a specific gravity of 2.50 to 2.75 were intruded the rate of swing of the pendulum would be very perceptibly increased. If, however, only a quarter of a cubic mile of the clay and sand were replaced with the lighter or heavier substances, the effect would scarcely be observable, and if the intrusion occurred several thousand feet below the surface it might not be possible to locate the position with the gravity instrument. Other instruments have been devised for measuring the intensity of gravity that do not make use of the pendulum, and it seems within the range of possibility that in time an instrument of some sort will be perfected by which more delicate observations can be made.

The writer has found but one published statement suggesting the use of gravity anomalies in the search for oil, and this was not intended to apply in the way here outlined. Eötvös,<sup>3</sup> in 1913, suggests that it may be possible to find water, ore, coal, salt, oil and gas by using gravity anomalies. David White<sup>4</sup> has, however, studied the relationships between gravity anomalies and character of rocks.

On account of the slight variations in altitude and latitude in southern Louisiana and Texas and other regions where salt domes occur, it seems possible that a considerable part of the calculations made in connection with the occupation of stations for other purposes may be eliminated. The use of gravity

<sup>3</sup> Eötvös, Roland, Ungarn. Bericht über Arbeiten mit der Drehwage ausgeführt im Auftrage der Kön. Ungarischen Regierung in den Jahren 1909-1911: Internat. Erdmessung, 17 Allg. Conf., Hamburg, 1912, Beilage A, XL, pp. 427-438, 1913.

<sup>4</sup> White, David, "Discussion of Gravity Anomalies from the Stratigraphic Standpoint" (no abstract). Discussed by William Bowie: Washington Acad. Sci. Jour., Vol. 7, No. 10, p. 312, May 19, 1917. Meeting of Geol. Soc. of Washington on March 14, 1917.

observations in the search for salt domes would then consist essentially in determining at many points the number of beats in a unit of time of a pendulum so constructed and encased as to reduce the friction to the lowest point possible. If the material in many of the domes will perceptibly affect the number of beats then it may be that gravity anomalies can be used profitably in searching for hidden domes, the observations for most points in a county or group of counties being uniform, while at a few points a perceptible departure can be observed. The increasing value of oil and the keen interest in prospecting make it seem possibly worth while to make some practical tests with the gravity instrument on a known salt dome and surrounding country, especially since many wells are being sunk at random in the region. To be sure, some salt domes are known which do not seem to have oil pools, and others are known which have not yet been fully tested, but the number of insufficiently tested domes is rapidly decreasing, and with the keener interest in the search for oil the time will no doubt soon come when it will be profitable to spend a great deal of money searching for salt domes, for they seem to be much more likely to contain oil than the surrounding country.

EUGENE WESLEY SHAW

U. S. GEOLOGICAL SURVEY

#### ANNUAL FIELD TRIP OF THE AMERICAN ASSOCIATION OF STATE GEOLOGISTS

THE American Association of State Geologists made a very pleasant and instructive trip through Oklahoma, October 12 to 16. At the winter meeting in Albany, in December, 1916, it was decided to hold the summer field meeting in Oklahoma, and the Oklahoma Geological Survey accordingly made very comprehensive plans for the entertainment of the association.

The declaration of war and the consequent interest of the geologists in war materials lead to the combination of the first part of the field trip with the meeting of the American Institute of Mining Engineers.

After the meeting of the American Institute of Mining Engineers ended at Drumright the

State Geologists' Association left the American Institute and continued the excursion outlined by the Oklahoma Geological Survey. The association was fortunate in having with it Mr. A. A. Snietkoff and Ivan C. Goubkin, members of the Russian Commission, and A. Stepanoff, their secretary and interpreter, and also Mr. David White, chief geologist of the U. S. Geological Survey.

The party arrived in Oklahoma City, where they were dinner guests of the Oklahoma Geological Survey. At this dinner President and Mrs. Brooks of the university honored the association with their presence. The next morning the party went to Lawton, where the Businessmen's League conducted them on an automobile trip through the Ft. Sill Military Reservation, Medicine Park and through the Wichita Mountains to the United States Forest and Game Preserve. The hospitality exhibited on this occasion will long be remembered by every one of the party. On the following morning automobiles were again used for a trip through the Lawton oil and gas field, where some new gas wells with enormous capacity have recently been brought in. By courtesy of the owners, the Keys well No. 2 was opened in order that the visitors might have the opportunity of seeing one of the largest gasers ever drilled in the state. The capacity of this well is estimated at 60,000,000 cubic feet per day and the rock pressure is in excess of 1,000 pounds, so large, indeed, that great difficulty is experienced in controlling the well. From this field the trip was continued by automobile through Waurika and Ringling to the Healdton oil field and the Fox gas district. After visiting the many interesting sights of this field the party was taken to Ardmore for the night, and in the evening were the guests of the Ardmore Chamber of Commerce at a concert.

The following morning the Chamber of Commerce provided machines to take the party north of the city into the Arbuckle Mountains. About two miles above Turner Falls the machines left the party and the trip was made on foot down to Turner Falls and across the mountains to Price's Falls, where

they were again joined by the machines. The wonderful beauty of the Travertine Falls in this district was enjoyed by all members of the party, and it was particularly enjoyable because of the fact that a new bulletin by the Oklahoma Geological Survey on these phenomena had just been received that morning from the printer. The automobiles then took the party to Davis, where the Santa Fe train was taken for home. The party finally disbanded after dinner at the Harvey House, at Purcell.

A few members of the association stopped over at Norman and visited the State University before continuing to their homes.

W. O. HORTCHIKSS,  
*Secretary*

## SCIENTIFIC EVENTS

### THE LATE DR. RICHARD WEIL

The following minute has been adopted by the board of trustees of the New York Memorial Hospital:

Dr. Richard Weil, Major in the Medical Reserve Corps, U. S. A., died while on active duty at Camp Wheeler, Macon, Ga., November 19, 1917. By his death the Memorial Hospital loses one of the most highly trained and successful workers of its medical staff, and American cancer research one of its recognized leaders. Since 1906 Dr. Weil has been an active member of the staff of the Huntington Fund, and throughout this period of eleven years he was constantly engaged in the problems of cancer research. His contributions in the field of the serology of cancer and in the general problems of immunity gained for him an international reputation. He was one of the founders of the American Association for Cancer Research, and largely through his efforts was founded the *Journal of Cancer Research*, of which he was editor-in-chief. At the reorganization of the Memorial Hospital in 1913, Dr. Weil assumed the position of assistant director of cancer research and attending physician to the hospital, and in this capacity he labored energetically to establish an efficient organization of the routine and research work of the hospital. In 1915 he resigned the position of assistant director upon his appointment as professor of experimental medicine in Cornell University, but he continued without interruption his experimental work in cancer. Upon the declaration of war he was among the first to offer his services to