versity of Prague, Czechoslovakia, in June, after which he left for Holland, where he will represent the University of Minnesota at the tercentenary exercises of the University of Utrecht.

PROFESSOR F. S. KIPPING delivered the Bakerian lecture before the Royal Society at Burlington House on June 25. He spoke on "Organic Derivatives of Silicon."

THE Academy of Medicine of Washington, D. C., whose organization was recently announced in this JOURNAL, has adopted the following plan for its programs. For each subject a committee of both laboratory and clinical men is appointed. The committee consists of those members who are qualified by special experience with the subject in one or another of its aspects, with, in addition, one or more members representing the academy at large. The committee in preliminary meetings studies and organizes the subject, and at a subsequent scientific meeting presents it to the academy. The reports of committee members and the discussion by the academy are informal. The first committee on subjects for study is one on "High Energy Particles and Radiations." It consists of Drs. Merle A. Tuve, Carnegie Institution, Department of Terrestrial Magnetism; Lyman J. Briggs and Lauriston S. Taylor, Bureau of Standards; George W. McCoy, National Institute of Health; Edwin A. Merritt, clinical radiology, and William J. Mallory, George Washington University School of Medicine. The first report of this committee was heard and discussed as the scientific program of the academy meeting of June 9, 1936.

Nature states that a Czechoslovak Microchemical Society was founded on April 25 in Prague at a gathering of about two hundred chemists, from both Czech and German scientific and industrial circles. Professor J. Heyrovský, professor of physical chemistry at the Charles University, known for his microchemical polarographic studies, has been elected president. The society's activities were inaugurated by a lecture by Dr. C. J. van Nieuwenburg, professor of analytical chemistry in the Delft Technical High School, on "Why and Where Microchemistry?" Austrian microchemists were represented by Professor Fritz Feigl, professor of chemistry in the University of Vienna. The society intends to cooperate with microchemical societies and clubs of England, America, Holland and Austria with the view of establishing an International Microchemical Society.

THE summer meeting of the Pennsylvania Academy of Science is scheduled to be held at Somerset on August 14 and 15. Biological and geological field trips are planned. Further particulars can be obtained from the secretary, Dr. V. Earl Light, Lebanon Valley College, Annville, Pa.

THE Biological Photographic Association will hold its sixth annual convention in Boston on September 24, 25 and 26, at the Hotel Lenox.

DISCUSSION

THE EFFECT OF IRRIGATION UPON SOIL TEXTURE

THE effect of irrigation upon soil texture has been noted in the Salt River Valley, Arizona. A soil survey was made of certain areas in 1899 and another covering much larger areas in 1927. The two surveys, where they cover the same territory, have little resemblance to each other. The first survey, made by the writer, was one of the first soil surveys made by the Bureau of Soils and would to-day be regarded as a crude reconnaissance. It did not go into detail but roughly classified the soils into sands, sandy loams, etc., to clays. The most recent survey goes into great detail and maps soils which can not be differentiated in the field by the non-scientific man. There were, however, great differences in the two surveys which can not be explained by anything but changes in the character of soils. For example, in the area around Tempe, covered by both surveys, 21 per cent. of the soils were classed as clay loams and clays in 1899, while in 1927 the maps show 82 per cent. of the same soil grades.

Such great differences can not be explained by improved methods of surveying or classifying soils. Deposition of sediment from irrigation with muddy water does not explain the differences, because no such great amount of sediment has been available in the water.

The difference between the irrigated and desert soils is more strikingly shown in the recent soil surveys where the area extends beyond the limits of irrigation. In the Buckeye region, shown on the Buckeye-Beardsley Area map, the Buckeye canal for long distances follows across unbroken desert the boundary between sandy loams and heavier soils—clay loams or silty clays. In 1899 no such difference existed; there was little difference between the soils above and below the canal.

The Paradise Verde Area map extends down to the Arizona canal, the uppermost irrigating the Salt River project. Above the canal light soils predominate. On the Salt River Valley Area sheet, which extends up to the same Arizona canal, heavy soils predominate below the canal. No such differences existed in 1899, and

no topographic or other reason exists for this change in soil type along the canal line.

From all the information available to the writer these differences are due to irrigation, which has gone on for fifty years or more. Most of the soils affected are very recent and are made up of mineral fragments washed from granitic mountains by torrential rains coming at rare intervals and spread by the floods originating in the desert storms. All the desert soils show much felspathic material, which appears to be comparatively fresh. Apparently the breaking down of these arkosic sands has caused the change in soils which has produced clay loams and clays out of sandy loams.

In the river bottom areas, where the soils are the result of sediments carried by the streams and where moisture has been present much longer than in the true desert soils, the effect is not noticeable. It is in the broad valley areas which slope from the mountains that the soil changes are most evident.

The quality of the water used in irrigation in the Salt River is a factor which should be considered. River water used by the canals in the Salt River project varies from 300 to 500 parts per million total salinity in floods to 1,500 or more parts per million at low flow. In recent years well water, higher in salinity than river water and running as high as 3,000 or more parts per million, has been mixed with the river water or used directly on many areas. In the Buckeye region, dependent in low flow periods on return water, the irrigation supply frequently runs as high as 3,000 parts per million total salinity. It may be that the use of water of this high salinity has had an effect in hastening the soil disintegration.

Two results of this change in the soils are apparent. First, the increase in clay content has made penetration of irrigation water very slow and in many cases it is difficult to get the soil to absorb enough water. This in turn tends to cause an accumulation of salinity in the soil, for where such highly saline waters are used it is necessary to use an excess above consumptive use requirements to leach out accumulating salinity.

The second effect of soil disintegration is the liberation of soluble matter within the soil. This may eventually accumulate in sufficient quantity to damage certain soils.

This short note is written to call attention to the phenomena observed in the hope that some one may be able to investigate the interesting matter.

THOS. H. MEANS

SAN FRANCISCO, CALIF.

UNPUBLISHED POEM BY T. A. CONRAD

IN connection with a discussion of the recent biography by Wheeler[1] of the paleontologist, T. A. Conrad, attention was called to the included unpublished poem[2] by Conrad.

At the time the poem was written, Conrad was paleontologist of the New York State Geological Society. Very probably the reason for his sojourn at Schoharie was because of the residence there of the John Gebhards, father and son, whose excellent collections and work on the Paleozoic section exposed at Schoharie were outstanding.

To a Trilobite

Thou large-eyed mummy of the ancient rocks,
The Niobe of ocean, couldst thou tell
Of thine own times, and of the earthquake shocks
Which tore the ocean-bed where thou didst dwell;
What dream of wild Romance would then compare
With the strange truths thy history might unfold?
How would Geologist confounded, stare
To find their glittering theories were not gold?
Methinks I see thee gazing from the stone
With those great eyes, and smiling as in scorn
Of notions and of systems which have grown
From relics of the times when thou wert born.
Thou ne'er saw glittering fishes in the deep,
Which now in multiform profusion play,
Nor giant shells, nor monsters such as sweep
Along the surge and dash the ocean spray.
Yes, small in size were most created things
And shells and corallines the chief of these;
No land but islets then, nor trees nor springs,
And no tornado thundered o'er the seas.
But the wild earthquake did the work of death,
And heaped the sand and tore the Naiad's cave.
Race after race resigned their fleeting breath—
The rocks alone their curious annals save.
And since the trilobites have passed away
The continent has been formed, the mountains grown,
In ocean's deepened caves new beings play,
And man now sits on Neptune's ancient throne.
The race of man shall perish, but the eyes
Of Trilobites eternal be in stone,
And seem to stare about with wild surprise
At changes greater than they yet have known.

T. A. CONRAD,
Paleontologist

Schoharie, June, 1840.

Although the writing of poems was a well-known phase of Conrad's life, copies of his poems are rare.

KATHERINE V. W. PALMER

PALEONTOLOGICAL RESEARCH INSTITUTION
ITHACA, N. Y.

PATHS OF FLIGHT

THE writer has noticed, from the various experiences he has had in dealing with the locusts (*Locusta*

[1] H. E. Wheeler, *Bull. Amer. Paleontology*, 23: 77, 1935.

[2] Written to Mrs. Amelia Caroline Harper Van Patten, June, 1840, at Schoharie, N. Y. The poem is now in possession of John Paul Young, of Ithaca, N. Y., a grandson of Mrs. Van Patten. Thanks are due to Mr. Young for permission to publish the poem.