hattan; *Treasurer,* H. A. Zinszer, Hays. *Additional members to the executive council:* W. J. Baumgartner, Lawrence; H. H. Hall, Pittsburg; W. B. Wilson, Ottawa. *Editorial board:* E. O. Deere, Lindsborg, and W. W. Floyd, Ottawa. The following section chairmen were elected: J. H. Doell, Newton, botany; L. E. Blackman, Emporia, chemistry; Louis R. Weber, Wichita, physics; F. C. Sauer, Wichita, zoology, who, however, died of scarlet fever about a week after the academy meeting, and John Breukelman of Emporia was appointed to the chairmanship of this section; Edwina A. Cowan, Wichita, psychology; Donald A. Wilbur, Manhattan, entomology; and Hazel Branch, Wichita, junior academy. Frank C. Gates continues as editor of the *Transactions.*

A new committee, consisting of O. W. Alm, Manhattan, A. C. Carpenter, Ottawa, and Miss Dale Zeller, Emporia, was appointed to study educational trends in the secondary schools of the state with respect to the basic sciences.

The next meeting of the academy will be held at Kansas State College, Manhattan, during the spring of 1937.

ROGER C. SMITH,
Secretary

THE PENNSYLVANIA ACADEMY OF SCIENCE

THE twelfth annual meeting of the Pennsylvania Academy of Science was held at the State Teachers College, Indiana, Pennsylvania, on April 10 and 11. About 60 papers were presented and a number of demonstrations shown. The address by the retiring president, Professor Edgar T. Wherry, University of Pennsylvania, was entitled "Reflections on the Origin of Life." Following the annual dinner, Dr. Austin L. Patrick, regional conservator, Soil Conservation Service, U. S. Department of Agriculture, spoke on "Soil Erosion and its Control." A total of 90 registered for the meetings, besides about 40 who attended the junior academy.

The following officers were elected for 1936–1937: *President,* Dr. Thomas D. Cope (physics), University of Pennsylvania; *Vice-President,* Dr. George H. Ashley (geology), Pennsylvania Topographic and Geologic Survey; *Secretary,* Dr. V. Earl Light (biology), Lebanon Valley College; *Treasurer,* Professor H. W. Thurston (botany), Pennsylvania State College; *Assistant Secretary,* Charles E. Mohr (education), Reading Museum; *Editor,* Ralph W. Stone (geology), Pennsylvania Topographic and Geologic Survey; *Press Secretary,* Dr. Bradford Willard (geology), Pennsylvania Topographic and Geologic Survey.

The 1937 meeting is scheduled to be held at Franklin and Marshall College, Lancaster, Pennsylvania. The regular summer meeting, with botanic and geologic field trips, will take place at Somerset on August 14 and 15.

BRADFORD WILLARD,
Press-Secretary

SPECIAL ARTICLES

PLEISTOCENE ALLUVIAL STAGES IN NORTHWESTERN OREGON

SUFFICIENT progress has been made in the distinction of subdivisions of Pleistocene glacial alluvium in the Pacific Northwest that it seems appropriate to make an announcement for the benefit of workers in archeology, pedology, vertebrate paleontology, stratigraphy and physiography, and possibly other to whom the data may be useful. With present interest in the possibilities of Pleistocene man in North America at high pitch, the dating of Quaternary materials becomes particularly important. The following descriptions apply primarily to Willamette Valley but are known to be applicable to other areas in Oregon and Washington.

Alluvial deposits corresponding to Kansan, Illinoian and Wisconsin ages of glaciation in the Cascade Mountains of Oregon and Washington are recognizable over wide areas. A few scattered remnants suggest another, yet older Pleistocene age, but as the deposits are rather local, limited to small areas on drainage divides, and are of uncertain importance, they may be dismissed briefly. An example is the gravel deposit on the hilltops in T. 6 S., R. 6 W., Polk County, Oregon. Their high topographic position, deep weathering and advanced degree of erosion suggest Early Pleistocene (Nebraskan ?) age. As a corollary of this interpretation the bulk of the andesitic lavas and pyroclastics of the Cascade Mountains must be pre-Pleistocene, probably Pliocene, and the fluviatile quartzite conglomerate near Troutdale, included by Bretz[1] in his Satsop formation, must be still older—perhaps the equivalent of the Miocene Ellensburg formation and the Hood River formation of Buwalda and Moore.[2]

The oldest of the well-defined Pleistocene stages is

[1] J Harlen Bretz, *Jour. Geol.,* 25: 446–458, 1917.
[2] J. P. Buwalda and B. N. Moore, SCIENCE, n.s., 66: 236, 1927.

represented by high gravel terraces along the valleys in the Cascade Mountains and by perched remnants along the margins of the Willamette Valley lowland. Sandy, Clackamas, Molalla, North Santiam, South Santiam and Middle Fork (of Willamette) river valleys still retain strips of notable size, and smaller areas occur in other areas on both sides of Willamette Valley. The Lebanon (Oregon) quadrangle alone includes about fifteen square miles of it. The terraces slope down from elevations of 1,000 to 1,500 feet or more above sea level in the mountain valleys to about 300 feet above sea level on the borders of the Willamette Valley lowland. Apparently the lowland also was once filled with similar materials that were removed during the subsequent interglacial age. The remaining deposits are mostly on resistant rock or in protected situations where the streams could not easily undercut and remove them. On account of dissection their surfaces are generally somewhat rolling. The deposits themselves are oxidized to depths of 20 to 30 feet along terrace fronts, and pebbles of basalt and andesite have been softened to clayey consistency to depths of 8 to 10 feet or more. Judged by their topographic position, the degree of their weathering and the amount of subsequent erosion, they are thought to be Kansan in age. Glacial drift of corresponding age is known along lower Sandy River Valley, for example, but the canyon forms of most valleys were unfavorable for the preservation of moraines.

The deposit next in order of age includes extensive, well-developed gravel terraces which spread out and coalesce as large alluvial fans as they emerged from the canyons onto the open lowland of the main valley floor. Especially notable fans were made by Molalla River near Molalla, North Santiam River west of Stayton, South Santiam River northwest of Lebanon, and by the headwaters of Willamette River proper north of Eugene. Glacial till of corresponding age occurs within 20 to 30 miles from the heads of the valleys, but morainal forms are not well preserved. The outwash terraces and fans of this age, however, have not been much eroded except as the major streams have cut wide trenches through them. The profile of these alluvial deposits descends from 425 feet above sea level near Eugene to 200 feet near Albany and to even lower elevations in the northern end of the valley where it passes beneath deposits of the succeeding stage.

The gravels of this age are irregularly oxidized to depths of 10 to 15 feet or more; the pebbles are entirely decomposed in the clayey soil zone and show exfoliating rinds at depths of several feet. The interstitial matter at even greater depths is altered sufficiently to restrict the flow of groundwater. In wet areas a claypan two to three feet thick occurs in the subsoil or extends downward between the partly weathered pebbles, thus resembling the gumbotil and gumbosand of the Illinoian glacial drift of south central Illinois. On the basis of this similarity of degree of weathering the deposits of this age may reasonably be correlated with the Illinoian subdivision of the Pleistocene.

The deposit next younger than the Illinoian is somewhat anomalous in its form and stratigraphic relations and distinctive in its petrographic character. It is shaped like a wedge which is thickest at the north. Toward the south and about the edges it overlaps older rocks to elevations between 350 and 400 feet above sea level. The bulk of the material is silt and fine sand, but it also includes blocks and smaller fragments of foreign rocks such as granite and quartzite, that evidently were brought in by icebergs that came down glacial Columbia River.[3] That this deposit is distinct from that of the next previous age and not merely a lowland phase of it is shown by the buried soil zone which commonly separates its silts from the underlying gravels. This relation is well shown, for example, in the banks of Willamette River near Peoria and Irish Bend, north of Harrisburg, Oregon. Furthermore, the silt when traced up-valley may be found not only to overlie the lower slopes of the Illinoian fans but also to form a bench within a trench previously eroded below the surfaces of these fans. Farther up-valley the bench continues intermittently as a gravel terrace between the Illinoian terraces and the present stream levels. The gravels of this terrace show ready permeability to groundwater. Extensive exposures of the typical silts occur along Willamette River, especially between Salem and Oregon City, and over extensive areas of the Willamette lowland. Most of the mammalian fossils reported from Willamette Valley seem to have been found in or on this deposit. The four to six feet depth of oxidation in aerated soils, the twelve to eighteen inch thickness of the claypan in wet areas, and the comparative freshness of the feldspathic erratics within the zone of weathering indicate that the deposit is probably not more than half as old as Illinoian, but must be Wisconsin in age. Glacial till of corresponding age is well shown in the vicinity of Brightwood in Sandy River valley west of Mt. Hood.

Within the trenches excavated by Willamette River and its tributaries through the Illinoian and Wisconsin alluvial deposits appears a low terrace which stands

[3] Ira S. Allison, *Bull. Geol. Soc. Amer.*, 46: 615–632, 1935.

generally 15 to 30 feet above the streams, and slopes down-valley in general accordance with them. Its smooth portions lie above the range of all but exceptional floods, but these smooth tracts are separated from each other and somewhat scored on top by true flood channels. Active erosion occurs especially along these channels during floods so that the smooth tracts are thought to be not a true floodplain of active alluviation but rather the remains of an earlier episode of alluviation now undergoing removal. The scant weathering of the material subsequent to its deposition as shown by a youthful soil indicates that this low terrace plain is not older than late Wisconsin and may be Recent. It is possibly to be correlated with a weak stage of valley glaciation shown by fresh till and an associated outwash plain near Zigzag on Sandy River, with a similar low terrace of fresh pumiceous gravels in Cowlitz River Valley of southwestern Washington, and with equivalent penultimate surfaces along the Columbia River and its tributaries. In Recent time the streams have cut through this inner plain or the earlier deposits, in many places to the underlying solid rock.

The air-laid pumice deposits of the Crater Lake field[4] which extend into the upper end of the Willamette drainage basin overlie the youngest moraines of the area and are clearly post-glacial, both by position and by feeble soil development.

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FRESH-WATER JELLY-FISHES IN ILLINOIS[1]

IN recent years there have been many records of the occurrence of fresh-water jelly-fishes in the eastern United States, but the occurrences seem to be sporadic and the species does not seem to become permanently established. Though known from adjoining states there has been no previous record of Craspedacusta in Illinois. The object of this note is to make available two instances which have come to my attention. Mr. John Cralley has sent me specimens of Craspedacusta from near Carmi in White County, Illinois. He reports that they were found in a concrete fish and lily pond filled from the Carmi water system. The pool consisted of two approximately circular basins, each ten to twelve feet in diameter and three feet deep, connected by a narrow channel. Plants, including water lilies and water hyacinths, had been introduced and the water was stocked heavily with goldfish.

Jelly-fishes were found on August 8, 1933. When first discovered they were abundant and remained so until about September first, disappearing entirely about September 20. Specimens transferred to balanced aquaria remained alive for two weeks. In the two succeeding summers the pool has been closely watched, but no jelly-fishes have been found.

Preserved individuals submitted to the writer have been compared with specimens from two lakes in Indiana, and from Gatun Lake, Canal Zone, and have been found identical in all important characters. Hence they have been identified as *Craspedacusta sowerbyi*.

Another Illinois record of Craspedacusta which has not been published is based on a series of observations by Mr. D. J. O'Donnell. On September 5, 1932, Mr. O'Donnell found jelly-fishes in a rock-garden pool in Vandalia, Fayette County, Illinois. This pool is of concrete construction, irregular in shape, about fifteen by seven feet and three feet deep. It is fed through a spray head from the Vandalia water system. Medusae were first noticed in this pool in the summer of 1931, about two months after water lilies, from a St. Louis dealer in supplies for tropical aquaria, had been introduced. The pool was drained for winter, but medusae reappeared in the summer of 1932. Mr. O'Donnell recorded the presence of medusae on September 5, 1932, and later observed that on September 20 they had disappeared.

In both of these instances at Carmi and at Vandalia in southern Illinois it seems probable that the medusae were carried into the small artificial pools along with introduced aquatic plants. This supposition is strengthened by the fact that though the water supply of both of these communities is derived from adjacent rivers, in both instances the water passes from settling tanks through filters before entering the supply mains.

It has been the belief of the present writer that Craspedacusta is more abundantly represented than records of its occurrence might indicate. Observers not directly acquainted with these medusae might readily overlook them. For several years students in field zoology in the University of Illinois have been warned to be on the lookout for Craspedacusta. The two instances here recorded are gratifying illustrations of directed attention yielding results.

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THE BIOLOGICAL EFFECTS OF THYMECTOMY IN SUCCESSIVE GENERATIONS OF RATS[1]

IN a previous communication, attention was called to the accruing acceleration in the rate of growth and

[4] B. N. Moore, *Jour. Geol.*, 42: 358–375, 1934.

[1] Contributions from the Zoological Laboratory of the University of Illinois, No. 481.

[1] From the Samuel Bell, Jr., Laboratory of the Philadelphia Institute for Medical Research in the Philadelphia General Hospital. This work was supported by a grant from the Penrose Fund of the American Philosophical Society. Part of thesis studies submitted by N. H. Einhorn to the Faculty of the Graduate School of Medicine of the University of Pennsylvania in partial fulfilment of the requirements for the degree of doctor of medical science, Sc.D. (Med.).