

so much emphasis on his failure in these respects. He has shown that his criteria are not satisfied for the life histories he has examined, and presumably he has chosen for examination the best available. He may thus have made a real contribution to the improvement of future life histories, even though the

work as a whole, especially in its all too frequent "asides" and in its exuberance of mixed metaphor, can hardly fail to impress any mature student as adolescent.

EDWIN B. WILSON

HARVARD SCHOOL OF PUBLIC HEALTH

SOCIETIES AND MEETINGS

THE ILLINOIS STATE ACADEMY OF SCIENCE

THE thirtieth annual meeting of the Illinois State Academy of Science was held at Rockford College, Rockford, Illinois, on May 7 and 8. The attendance at the meetings, including the sessions of the Junior Academy, which held meetings of its own at the Rockford Senior High School, was well over 1,000.

For the program at the general session on Friday morning, after an address of welcome by Dr. Gordon Chalmers, president of Rockford College, Professor C. L. Furrow, Knox College, Galesburg, president of the academy, gave an illustrated lecture on "The Evolution of Sex in the Mollusca." This was followed by an address by Mr. Don L. Carroll, of the State Geological Survey, Urbana, on "Some Observations on the 1937 Flood in Southern Illinois." This address was illustrated by lantern slides of aerial photographs and maps of the area. The final address of the Friday morning session was a lecture, illustrated by colored moving pictures, on "Science and the Garden" by Mr. John H. Hanley, University of Illinois, Urbana. The Friday morning session of the Junior Academy was given over to the display and judging of the projects which were presented for competition in the annual exhibition of projects. For the general session on Friday evening Professor H. A. Vagtborg, of the Armour Institute of Chicago, addressed the Junior Academy members and guests on the topic "The Story of Sanitation." Professor George W. Stewart, head of the department of physics of the University of Iowa, addressed the Senior Academy on the subject, "Changes in Concepts of States of Matter."

On Friday afternoon 145 papers were presented before nine sectional meetings. The activities of the academy for the Saturday sessions consisted of six field trips. These were especially well attended. The geological trip, under the direction of Dr. M. M. Leighton, chief of the State Geological Survey, Urbana, and of Dr. George E. Ekblaw, also of the State Geological Survey, visited points of geological interest in the vicinity of Rockford. An industrial trip, under the sponsorship of the Rockford Chamber of Commerce, visited some of the many interesting industrial plants at Rockford. A trip to the Rockford Sewage Disposal Plant was conducted under the leadership of Mr. T. G.

Lindquist, superintendent of the Sanitary District of Rockford. An anthropological trip, with Dr. J. B. Ruyle, of Champaign, as leader, visited the Logan Museum of Beloit, Wisconsin, and studied the various kinds of Indian mounds in the vicinity. A trip under the leadership of Mrs. J. H. Mansfield, president of the Rockford Garden Club, visited some of the many fine residential gardens of Rockford, the public parks and the nine forest preserves of Winnebago County. The botanical trip, under the direction of Dr. H. W. Pepoon, Chicago, and Dr. George D. Fuller, of the University of Chicago, visited and studied the interesting flora of Apple River Canyon State Park.

The officers elected for the year 1937-38 are:

President, Harold R. Wanless, geology, University of Illinois; *First Vice-President*, George D. Fuller, botany, University of Chicago; *Second Vice-President* and *Chairman of Committee on Local Arrangements*, Otis B. Young, physics, Southern Illinois State Normal University; *Secretary*, Wilbur M. Luce, zoology, University of Illinois; *Treasurer*, Paul D. Voth, botany, University of Chicago; *Editor*, Dorothy E. Rose, geology, Illinois State Geological Survey.

The annual meeting for next year will be held at the Southern Illinois State Normal University, Carbondale, Illinois, on May 6 and 7, 1938.

WILBUR M. LUCE,

Secretary

THE NEW HAMPSHIRE ACADEMY OF SCIENCE

THE nineteenth annual meeting of the New Hampshire Academy of Science was held on May 28 and 29 at Colby Junior College, New London. The Friday evening session was devoted to the reading of papers by members, the principal one of which was "Physiography of the Mt. Washington Region," by Mr. Richard P. Goldthwait, of Harvard University, who has been working on the problem with the aid of a grant from the academy and from the American Association for the Advancement of Science.

Papers by members were read at the Saturday morning session. Professor Charles F. Brooks, director of the Blue Hill Observatory, Harvard, and of the Mt. Washington Observatory, reported on the work done at the Mt. Washington Observatory during the

past year, including the special studies aided by an academy grant from the American Association.

At the Saturday afternoon session following the business meeting the presidential address, "Vertebrate Evolution—A Record and Some Implications," was given by Professor George M. Robertson, of Dartmouth College.

At the business meeting it was announced that the council had recommended the awarding of the grant for the current year from the American Association for the Advancement of Science to Dr. Henry I. Baldwin, of the State Forestry Department, for assistance in compiling and publishing "A Flora of the Fox Research Forest." The committee on conservation, of which Mr. Laurence W. Rathbun, chief forester of the

Society for the Preservation of New Hampshire Forests, is chairman, made a report of its activities and presented plans for further work.

The following officers were elected for 1937-38: *President*, Professor Karl W. Woodward, University of New Hampshire; *Vice-president*, Dr. Henry I. Baldwin, research forester, State Forestry Department; *Secretary-Treasurer*, Professor George W. White, University of New Hampshire; *Member of the Executive Council*, Professor George M. Robertson, Dartmouth College; *Councillor to the American Association for the Advancement of Science*, Professor Walter C. O'Kane, University of New Hampshire.

GEORGE W. WHITE,
Secretary

SPECIAL ARTICLES

THE BEHAVIOR OF CERTAIN DUSTS¹ UNDER MECHANICAL² IMPINGEMENT

ONE type of method for the examination of the dustiness of the air depends on the mechanical impingement of a known volume of the dust-laden air at a considerable velocity on a dry or wetted surface. From the number of dust particles found on a limited area of the dry surface or in a certain volume of the wetting liquid the number of dust particles in a unit volume of the sampled air is calculated. The possi-

particles formed than were originally present, and furthermore a particle size determination on the resultant particles would show greater numbers in the smaller sizes than were present in the air.

So far we have used only three dusts in our experiments. Finely ground orthoclase feldspar and quartz were classified by settling in a mixture of water and ethyl alcohol. This method of classification has been described in detail by Cummings.³ The fraction of each dust between 5 and 10 microns was resettled five times to remove adhering "fines." The third dust used

TABLE 1

	Impinging velocity* meters per second	Conditions of impingement	Ratio of smaller particles to particles of original size (approx.)	Average dimensions of shattered particles microns
Feldspar	40 ± 10	Dry surface of gelatine and glycerine	4.5 : 1	1.0-1.5
Feldspar	70 ± 10	Dry glass plate ⁵	100 : 1	1.0 and less
Feldspar	100 ± 10	Dry glass plate	100 : 1	1.0 and less
Feldspar	150 ± 10	Glass plate submerged in water	50 : 1	1.5 and less; considerable ultra-microscopic material
Pen. Oxal.	40 ± 10	Dry surface of gelatine and glycerine	0 : 1	None shattered
Pen. Oxal.	70 ± 10	Dry glass plate	0 : 1	None shattered
Pen. Oxal.	100 ± 10	Dry glass plate	0 : 1	None shattered
Pen. Oxal.	150 ± 10	Glass plate submerged in water	0 : 1	None shattered
Quartz	40 ± 10	Dry surface of gelatine and glycerine	3 : 1	1.0-1.5
Quartz	70 ± 10	Dry glass plate	25 : 1	1.0 and less
Quartz	100 ± 10	Dry glass plate	50 : 1	1.0 and less
Quartz	150 ± 10	Glass plate submerged in water	50 : 1	1.5 and less; considerable ultra-microscopic material

bility of breakage of the dust particles due to their force of impact on the impingement surface has been suggested from time to time, but as far as the writers know no investigations on this point have ever been published. If breakage did occur there would be more

¹ The term "dust" is used to denote solid particles 0.5 to 10 microns in longest dimension.

² The term "mechanical" is used to denote a force caused mechanically rather than thermally or electrically.

was dried spores of *penicillium oxalicum*. The spores are uniform in size, averaging 2 microns in diameter by 4 microns in length.

Behavior of the three dusts under various conditions are given in Table 1.

³ D. E. Cummings, *Jour. Ind. Hyg.*, 245-56, 1929.

⁴ The velocities given above were obtained by dividing the volume of air sampled in a unit time by the area of