organic chemistry, bacteriology, pharmacology and biochemistry will be conducted at Cincinnati, Cornell, Illinois, Indiana, Louisville, Michigan, North Carolina, Ohio State, Pennsylvania and Temple Universities, and at Kansas State Teachers College. Grants for clinical research fellowships have been made to the Chicago Maternity Center, the University of Cincinnati, Harvard University, the University of Louisville, the University of Nebraska, the Pennsylvania Post-Graduate Hospital, Wayne University and Washington University.

Nature reports that the National Research Council of Canada will award for the academic year 1943–44 fourteen fellowships of the value of $750 each, thirty studentships of $650 each and twenty-one bursaries of $250 each. The sixty-five successful candidates for these post-graduate scholarships comprise graduates of fifteen Canadian universities, and they will carry out research work in the coming year at eleven of these institutions. As a result of war conditions, the fields of science in which the scholarship holders will work are reduced in number as compared with a few years ago. By far the greatest number will work in various branches of chemistry related to the war effort. According to a general classification adopted in announcing the awards, forty-nine will study chemistry, six physics (including one radiology), four biochemistry, two genetics, and one each biology, mineralogy, mechanical engineering and electrical engineering.

DISCUSSION

THE MOSSES OF LURAY CAVERN, VIRGINIA

THE writer returned[1] to the Caverns of Luray in the Shenandoah Valley of Virginia in September of 1941 for a more complete sampling of the mosses that are now growing upon the floor, walls and ceiling of the cavern wherever artificial light has been cast in time and amount sufficient to cause germination of the moss spores. Through the courteous assistance of the cavern management a thorough examination of the cavern was made, and all specimens which to the unpracticed eye appeared to be different in any form or color were collected. Though it can not be claimed that the collection is complete, it should present, however, a fair cross section of the kind of mosses in the Caverns of Luray. The specimens were sent to Dr. W. C. Steere, of the University of Michigan, who has kindly provided the identifications given in the column in Table 1 under "plant."

TABLE 1

Station	Plant	Description
Ramble	*Leptobryum pyriforme* (Hedw.) Schimp.	One-inch long thin stems, spare of leaves
Cross of 8	*Bryum pseudotriquetrum* (Hedw.) Schwaegr.	¾-inch long stems, well covered with leaves
Cross of 8, ground light	Moss—sp.?	2-inch long stems, luxurious leaf development
Mirror Lake	*Ceratodon purpureus* (Hedw.) Brid.	½-inch fine stems, small fine leaves
Entrance wall, 12 feet above floor	*Eurhynchium serrulatum* (Hedw.) Kindb.	Stems an inch or more long, quite leafy
Dream Lake	*Bryum pseudotriquetrum* (Hedw.) Schwaegr.	Long stems, leafy
	Weisia viridula (Hedw.)	Very short tight bunches of stems, leafy
	Thuidium sp.	Long stems full of tightly packed leaves
Ramble—ceiling	Algae	Minute filaments, fraction of mm long

[1] Walter B. Lang, SCIENCE, 94–2444, p. 414, October 31, 1941.

It is interesting to note that algae were found tenaciously growing to the limestone ceiling as a thin, compact, dark-green matte and under the same conditions as the mosses.

Supplemental samples of the moss specimens were spread between blotters and packed away at the time they were collected. When the containers were opened after the specimens had been more than a year without light or moisture they were found to be as green as ever.

Some two years ago the new Skyline Caverns near Front Royal, Va., were opened to the public after having been equipped with a modern lighting system. I was privileged at the time to make a thorough examination of the cavern for evidence of moss but found none except in the entrance corridor in the immediate vicinity of lights that are allowed to burn more or less continuously. This new moss growth appeared like a faint green fuzz upon the limestone. In time, it is expected that mosses will germinate within the cavern where the large projectors have been placed.

Dr. Frans Verdoorn has recently brought to my attention a paper by Jacques Maheu on American cavern flora[2] in which he presents some interesting conclusions regarding a comparison of American and European cave flora. Maheu states that the flora of Kentucky caves and those of Europe are the same and deduces therefrom that it is possible to establish one classification of cavern flora which will be universally applicable regardless of country or climate. He notes that American forms are more reduced and less varied, but that the variations are absolutely parallel with those of Europe; sterility, lengthening of the leaves, wider spacing of the leaves on the stems, elongation of the cells and disappearance or thinning of the nerve. The two most important factors in bringing about this

[2] La flore cavernicole américaine (Grottes de Mammoth-cave et de City-cave, état de Kentucky), *Bull. Soc. Bot. de France*, 63: 39–57, 1926.

transformation of plant life entering the environment of caves are humidity and reduction or total elimination of light. He further emphasizes the fact that of the American caves he has visited, he did not find the flora as rich as that of Europe and the neighboring species, but more transformed.

One wonders whether the flora in large caverns in the desert area of southwestern United States has not been more transformed where the humidity of the upper part of the cavern is affected by the regional environment.

WALTER B. LANG

U. S. GEOLOGICAL SURVEY

THE HEATH HEN

THIS is rather a belated attempt to draw attention to one of the statements made by Dr. W. C. Allee in his article published in SCIENCE for June 11 in which he cites safety in numbers as one of the evidences of natural cooperation. This is one of the most important principles of conservation and one which should be driven home to all Americans. I do not think there would be a better way to explode the idea that a single pair of animals can regenerate a host of the species than to quote from another publication of Dr. Allee's, "The Social Life of Animals," discussing the fate of the heath hen.

> The heath hen was most abundant in Massachusetts, but by 1850 it had been killed off until it was to be found only on Martha's Vineyard and nearby islands and among the pine barrens of New Jersey. By 1890 to 1892 the birds had diminished to a scant two hundred at most, restricted to Martha's Vineyard. As soon as the "bird stuffers" heard how rare they had become, prices went up and museum collectors rushed in to get specimens before they disappeared like the dodo. By 1907 the count had been reduced to seventy-seven. The Heath Hen Association was formed. The society arranged for almost three thousand acres of protected range for the birds. By 1916 their numbers had increased to two thousand.
>
> Then came a fire, a gale, and a hard winter, with an unprecedented flight of goshawks, and in April, 1917, there were fewer than fifty breeding pairs. The next year, when there was an estimated total population of one hundred and fifty, the heath hen range was invaded by several expert photographers who took motion pictures of mating behavior. In the face of this disturbance at a critical time, still a good year allowed the birds to increase and again spread over Martha's Vineyard. In 1920 three hundred and fourteen were counted; but thereafter a decline in numbers set in which was never stopped.

In spite of increased measures of protection, the census for the succeeding years were 117, 100, 28, 54, 25, 35. The last one seen was a banded male, in 1932. These facts clearly point out the folly of waiting until near extinction before preserving a species.

JAMES H. PANNELL

NUMBERING BOOK ILLUSTRATIONS

THE writers have a particularly good reason for agreeing *in toto* with the suggestions made in Lewis G. Westgate's article, "On Numbering Book Illustrations."[1] Eleven years ago we employed the principle now sponsored by Westgate of numbering tables and nomographs according to the page on which they occur.[2]

From the point of view of both author and publisher, more work is involved in numbering the table that is found on page 86 as Table 86. Comments we have received indicate that, from the reader's standpoint, this extra work is amply justified. We join with Westgate in hoping that an increasing number of authors will see that the figures, tables, etc., in their scientific texts and reference books are referred to by their page numbers.

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NEW WORDS IN SCIENCE

I WAS very much interested in a recent letter in SCIENCE by E. F. McDonald, Jr., discussing the new word, *Radionics*. As science editor of the College Standard Dictionary, now undergoing a thorough revision, it is a good part of my job to watch for, track down, estimate and define the hundreds of new terms being introduced into the various sciences, both theoretical and applied. Mr. McDonald's comments on *Radionics* sent me on a hunt through various current sources, but with disappointing results. I have not succeeded in finding the word in actual use in the few technical journals I have seen, including the *Review of Scientific Instruments, Science News Letter,* the *Journal of Chemical Education* and a number of recent books.

I wonder if any of your readers could supply me with further information on the origin, date of first use, originator, range of usage, etc., regarding this very expressive term? The status of the men who favor it over *electronics* (which I still find used rather extensively) suggests survival value and naturally I am anxious to see that it has the proper rating in our dictionary, along with a respectable number of other new terms, such as *vitamer, betatron, tectonophysics, paleopedology* and *geotechnology.*

It has long seemed to me that both scientist and layman would be greatly benefited by a more intelli-

[1] SCIENCE, 96: 581, December 25, 1942.

[2] J. W. Dunlap and A. K. Kurtz, "Handbook of Statistical Nomographs, Tables, and Formulas." World Book Company, vii + 163 pp. 1932.