is thrown into diagonal folds, but seems to preserve some of the muscular contour.

On the tail of another specimen of *Trachodon,* from the American Museum Cope Collection, the entire epidermis is covered with flattened scales of larger size, nearly a centimeter in diameter.

This disposition of the scales into the larger pavement groups and smaller tubercular areas is unlike that observed by the writer in any lacertilian; it appears to be unique. In a second paper the longitudinal and perpendicular arrangement of the clusters will be more fully made out.

Mr. Sternberg has added another of his important contributions to science through the fortunate discovery of this unique specimen, in a geologic region which was very generally considered as thoroughly prospected out.

HENRY FAIRFIELD OSBORN

BOTANICAL NOTES

SHORT NOTES

IN the March number of the *Journal of Botany* R. F. Rand begins his altogether interesting "Wayfaring Notes in Rhodesia" which remind one of the notes made by the traveling botanists of a century or so ago. Here one finds morphological, ecological, taxonomic and critical notes delightfully commingled.

AKIN to the foregoing are the notes on English plants made by Matthew Dodsworth, a seventeenth century botanist, now first published in the *Journal of Botany* for March, by the editor. It is interesting to note such names as "Wild Williams" (for *Lychnis flos-cuculi*) and "Woodbind" (for Woodbine). A couple of letters to Plukenet are dated 1680 and 1681.

IN a recent number of the *Centralblatt für Bakteriologie, Parasitenkunde und Infectionskrankheiten* (Bd. XXII., Abt. 2) Dr. O. Jensen, of Copenhagen, proposes a new classification of the bacteria based upon their activities. He recognizes eleven families, as follows: *Oxydobacteriaceae, Actinomycetes, Thiobacteriaceae, Rhodobacteriaceae, Trichobacteriaceae, Luminobacteriaceae, Reducibacteriaceae, Acidobacteriaceae, Alkalibacteriaceae, Butyribacteriaceae, Putribacteriaceae.* A chart showing the relationship of these families and the genera they contain accompanies this quite suggestive paper.

AN interesting paper on the temperature relations of foliage-leaves in the February number of the *New Phytologist* is likely to be somewhat disconcerting to those botanists who still speak of the "cool leaves"—made so by transpiration. Not only are leaves shown to have a high internal temperature in the sunlight, but Molisch has found that leaves may have a high temperature due to respiration.

ELMER D. MERRILL, of the Biological Laboratory of the Bureau of Science, Manila, has published many important botanical papers during the past two years in the *Philippine Journal of Science,* among which are the following which have been issued as separates: Index to Philippine Botanical Literature; The Flora of Mount Halcon, Mindoro; Additional Identifications of the Species described in Blanco's Flora de Filipinas; Philippine Plants collected by the Wilkes United States Exploring Expedition; New Philippine Plants from the Collection of Mary Strong Clemens; New or Noteworthy Philippine Plants; The Oaks of the Philippines (*Castanopsis,* 1 sp.; *Quercus,* 17 sp.); Philippine Ericaceae (*Rhododendron,* 16 sp.; *Vaccinium,* 19 sp.; *Gaultheria,* 2 sp.; *Diplycosia,* 2 sp.); On a Collection of Plants from the Batanes and Babuyanes Islands.

FROM the Philippine Bureau of Forestry we have the Annual Report of the director, Major George P. Ahern, and a paper by the same author, entitled "A Few Pertinent Facts concerning the Philippine Forests and Needs of the Forest Service, that should interest every Filipino." In the latter he urges the Filipinos to educate their children for the public service, especially as foresters, and calls attention to the 60,000 square miles of public forests and the advantageous position of the islands for the supply of lumber to the far east. In another bulletin (No. 9) W. I. Hutchinson calls attention to a Philippine

substitute for lignum vitae in the heartwood of *Xanthostemon verdugonianus*, which weighs 77 pounds per cubic foot. The tree is large, with a diameter of 45 inches, and a length of stem of 25 to 30 feet. It occurs in the southern islands of the archipelago.

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SPECIAL ARTICLES

A FOSSIL GAR-PIKE FROM UTAH

Some time ago Professor R. D. George obtained in Utah a fine specimen of *Lepisosteus* preserved in a block of limestone. The fossil is of particular interest because the stone is being quarried by the Western Lithographic Stone Company, yielding slabs highly serviceable for lithographic purposes. The age of the formation had not been determined until the fish was examined, but it is now safe to say that it is Middle or Lower Eocene. The specimen was obtained twelve feet from the surface, three miles northwest of Tucker, Utah. It lacks the head, but is otherwise in very good condition. In all respects, it agrees excellently with *Lepisosteus simplex* Leidy, as described and figured by Eastman.[1] Eastman's excellent figure, except for having the head, might almost have been taken from our specimen. The smooth scales, with occasional minute pits, are in exact agreement, as are the characters of the fins, etc.

L. simplex was found in the typical Green River locality in Wyoming, according to Eastman, though Hay ascribes it to the Bridger Eocene. There is a species described from Utah, *L. cuneatus* (Cope), which has smooth scales, and it is at least very much like *L. simplex*. This *L. cuneatus* comes from the Manti shales, Manti being some fifty miles south-southwest of Tucker. Eastman (*loc. cit.*) ascribes this to the Miocene, but Cope considered it Eocene, and it has been held that the Manti shales are of the same age as the Green River. It may be that the true Green River extends from Wyoming to central Utah, and that *L. cuneatus* is the same as *L. simplex*.

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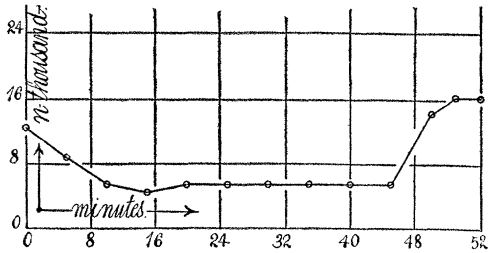
[1] *Bull. Mus. Comp. Zool.*, XXXVI., No. 3.

THE NUCLEATION OF A CLOSE LECTURE ROOM

Recently, at the request of Professor Barus, I made a series of measurements on the nuclei in the air of a crowded lecture room. There were over a hundred students in attendance and the ventilation was not sufficiently brisk to obviate the occurrence of somewhat offensive closeness at the end of the hour. The object of the investigation was to determine whether any solid or liquid nuclei were thrown off by the many lungs in action, sufficient to be detected by the coronas of the fog chamber in the presence of the natural nucleation (largely inorganic) of the lecture room.



The method of investigation consisted in aspirating the air of the room continuously through the fog chamber and examining it by exhaustion from time to time. The result may best be given graphically by laying off the nuclei in thousands per cubic centimeter in a way to show their variation in the lapse of minutes of time.

The figure begins with a moderate measure of dust during the desultory entry of the members of the class. But throughout the lecture hour the nucleation diminishes. Evidently there is subsidence of dust (in part into the lungs of the students who virtually cushion the floor), but no corresponding evolution of nuclei as resulting from the respiration of this animated carpet. At the close of the lecture, when the class rises hilariously as a body to depart from the place of torment, they literally raise the dust again, in much larger quantity than on entering.

Unfortunately it is impossible to separate the organic from the inorganic dust content of this atmosphere for the present purposes. The only conclusion attainable is, therefore, that there is no appreciable evolution of non-gaseous matter, but rather an absorption of nuclei