tion, has accepted the position as head of the department of botany and plant pathology in the North Carolina Agricultural and Mechanical College, West Raleigh, N. C. He will enter upon his new duties on January 1.

ARTHUR S. RHOADS, who has a bachelor's and master's degree in science from the Pennsylvania State College, has recently taken a position as assistant in forest pathology in the New York College of Forestry.

DR. E. W. A. WALKER, fellow of University College, Oxford, has been appointed lecturer in pathology.

DISCUSSION AND CORRESPONDENCE

PRE-CAMBRIAN NOMENCLATURE

TO THE EDITOR OF SCIENCE: The State Geological Reports often contain facts which are of wide interest but which are liable to be overlooked. As all general conclusions must depend on local facts, it seems to me to be the duty of those who recognize the wide bearing of these local facts to bring them to public notice. I have just received a book[1] in which the results of the "Contributions to Pre-Cambrian Geology" by R. C. Allen, affect not merely Michigan, but the whole subject of Pre-Cambrian nomenclature. For instance the very interesting and valuable tables published by Miller and Knight showing the correlation of Pre-Cambrian rocks[2] might be revised by the authors in view of this publication.

Now the main point is this: Andrew C. Lawson in his study of the pre-Cambrian rocks urges that the Animikie, which has always been considered a part of the Huronian period, is a period independent of, and later than the Huronian period. The author, R. C. Allen, shows good reason to believe that the Gogebic which has always been correlated with the Animikie should be correlated with the *middle* Huronian. He accordingly correlates the Animikie as *middle* Huronian. This seems to me to be worthy of mention in as much as Allen has not confined himself to work in Michigan but has worked in the original Animikie region. I first met him there.

Now, in view of these facts, I may put in print suspicions which I have only breathed in conversation, namely, that in the original Huronian where there are bright bits of jasper in the Thessalon conglomerate, they were derived from a *middle* iron-bearing series which is not well represented in that area. In view of the facts brought forward by Allen which indicate that the Gogebic was invaded by granite intrusions, and then later was overlaid unconformably by another formation, the Copps formation, it seems to me it would be very premature to make the changes suggested by Lawson or by Miller and Knight. I have no doubt the facts presented in this report will have to be carefully scrutinized by these writers, who will undoubtedly form their own conclusions.

In the meantime we must be very careful about trying to make widespread pre-Cambrian subdivisions. In any one district the division line between those strata affected by granite intrusions and metamorphosis and those not so affected is marked, and such was practically the line between the Huronian and Laurentian as originally mapped. But it becomes more and more clear that granite intrusions on a large scale have taken place in different regions at different dates. And it is very doubtful to me whether the habit of grouping granite intrusions under names which are more or less correlated with inter-geologic periods is a wise arrangement.

The same report contains a valuable paper by Case and Robinson which emphasizes and shows the correctness of the downward salients of Schuchert's curve showing the extent of the ocean in those times in the paleozoic section in Michigan. What we need to do for the pre-Cambrian is to adopt the same laborious process that Schuchert has completed and see if possibly different types of strata, such as the great Middle Huronian (Mio-Huronian) iron-bearing formation may not, as I have suggested, correlate with definite stages in the

[1] Pub. 18, Geol. Series 15, Mich. Geol. and Biol. Surv., by Allen and Barrett.

[2] P.-C. Geol. of SE. Ont., by Miller and Knight, Rep. Bureau of Mines, Vol. XXII.

evolution of air and ocean under the influence of early life. Mr. Allen has made an important contribution to pre-Cambrian geology, of far more than local value.

Alfred C. Lane

MEMBERS HOLDING LONGEST CONTINUOUS MEMBERSHIP IN THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Through a clerical oversight, by reason of the original list having been drawn up for another purpose, the following names were inadvertently omitted from the roll of those who now hold the longest continuous membership in the American Association, printed in Science for December 3. It will be noted that all in the following list are Life Fellows of the Association.

*Hitchcock, Charles Henry, Ph.D., LL.D., Honolulu, Hawaii. (11.) 1874. E.
*Lyman, Benjamin Smith, E.M., 708 Locust Street, Philadelphia, Pa. (15.) 1905. E.
*Gilbert, Grove Karl, LL.D., U. S. Geological Survey, Washington, D.C. (18.) 1874. E.
*Morse, Edward Sylvester, Ph.D., Peabody Museum, Salem, Mass. (18.) 1874. F, H.
*Stephens, W. Hudson, Lowville, N. Y. (18.) 1874. E, H.
*Warner, James D., 463 East 26th Street, Flatbush, Brooklyn, N. Y. (18.) 1874. A, B.
*Hanaman, Charles Edward, Troy, N. Y. (19.) 1883. F.
*Mendenhall, Thomas Corwin, Ph.D., Sc.D., LL.D., 329 North Chestnut St., Ravenna, Ohio. (20.) 1874. B.

L. O. Howard,
Permanent Secretary

PAN-AMERICAN

To the Editor of Science: Will you kindly tell me the scientific meaning of Pan-American? Is Canada in or out of the Pan?

Otto Klotz

Ottawa,
December 9, 1915

SCIENTIFIC BOOKS

Tierbau und Tierleben. Von R. Hesse und F. Doflein. Band 2. Das Tier als Glied des Naturganzen von F. Doflein. B. G. Teubner, Leipzig und Berlin. 8vo. Pp. xv + 960. 740 text illustrations and 20 plates.

The second volume of Hesse and Doflein's "Tierbau und Tierleben" has just been issued by Teubner, of Berlin and Leipzig. The first volume, from the pen of Professor Hesse, appeared in 1910 and dealt with the structure and functions of the animal body. The companion volume, the work of Professor Doflein, bears the date of 1914 and takes up the consideration of the animal as an element in nature. It is divided into three books. The first has to do with animals in their relations to their organic surroundings and deals with their feeding habits, their means of defense, their sexual life, their migrations, the care of their young, and their social life. The second book treats of animals in their relations to their inorganic environment, such as general cosmic changes, the surrounding medium and the substrate, the quantity and quality of food, temperature and climate, and light. The third and last book has to do with the adaptive structures and activities of animals, and the explanation of these phenomena. The volume contains almost a thousand pages and is illustrated by some twenty plates and over seven hundred text-figures. The press work, including the illustrations, is beautifully done. Gothic type, however, gives the page a less modern scientific aspect than Roman would have done. Some of the illustrations, like Fig. 574 of the sleeping places of Indian birds, verge more on the theatrical than on the natural; others, like Liljefors' grouse and wild-goose plates, are really wonderful works of art. Here and there a few mistakes are to be noted; thus Fig. 721 is incorrectly attributed to Packard. But in such a wealth of material it is impossible to comment critically. Suffice it to say that the immense body of new and accurate information brought together in this volume will make it a most welcome addition to the present source of information used by the modern zoological reader. G. H. Parker

Flora of New Mexico. By E. O. Wooton and Paul C. Standley. Contrib. U. S. National Museum, Vol. 19. 1915. Pp. 794.