be explained, if the ions are large even in comparison with the larger gradations of colloidal nuclei. Fewer of these will, therefore, be captured in proportion as the ionization is larger. Hence the figure shows at *a* a corroboration of Wood and Campbell's results; at *e* an omission or inversion of the periods. But the *e*'s are much fewer in number, and in comparison with the amplitude of the *a*'s the *e*'s are frequently neutral.

In the second place the high nucleations during the period of rain are noteworthy. Here then few ions were present. As there is a modification of the atmospheric potential gradient during this time, one would favor an explanation on similar lines to the ideas suggested by Richardson.[3] From the above I could merely infer, however, that a region of rain is opaque to the cosmical radiation, though the periods are not wiped out. Moreover, the interpretation here is not straightforward and much must be left for future determination.

Since last August (1905) a systematic comparison between the dust contents and the ionization of the atmosphere has been carried out in this laboratory by Miss L. B. Joslin. As the paper is soon to appear in the *Physical Review*, I will merely state that no relation between the two curves of monthly ionization and the nucleation curve is discernible. Ionization and dust contents of the atmosphere are, therefore, not only to be referred to totally different sources, but are independent of each other. The origin of the former is, therefore, essentially non-local. Again the positive and negative monthly ionizations show curiously opposed periods in the successive months (August to March) which may be of relevant interest.

I may add in conclusion that if the final isothermal drop of pressure in the fog chamber, instead of being observed as was my custom heretofore, is computed from the volumes of the fog and vacuum chamber and the corresponding pressures, the data for the colloidal nucleation of dust-free air found in my large coronal chambers agree with the data which I endeavored to deduce from the disc colors seen by Wilson in his small and unique apparatus. In other words, the condensational efficiency which I have reached in spite of size is now surpassed by no other form.

Carl Barus.

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[3] *Nature*, LXXIII., p. 607, 1906.

RECENT MUSEUM PUBLICATIONS.

Report of the American Museum of Natural History for 1905.—It is difficult in reviewing the work of so large an institution, whose growth extends along many different lines, to select the more salient features of the year, but the completion of the work of preparing and mounting the skeleton of the great dinosaur *Brontosaurus* may be regarded as the feature of 1905. This one piece is probably responsible for a goodly portion of the 565,489 visitors, but the fine bird groups, one of flamingoes and one of the bird life of the San Joaquin Valley have attracted many.

As usual, many important fossil vertebrates have been secured during the year, including portions of the great carnivorous reptile *Tyrannosaurus*.

Special attention has been given to the public schools by preparing loan collections and by lectures; no less than 600 bird skins and 1,800 insects were purchased for the preparation of loan collections and 400 cabinets are now available for circulation.

In concluding his report President Jesup notes that this marks his twenty-fifth year of service and calls attention to the progress of the museum made possible by the support of the citizens of New York.

The Fourth Annual Report of the Horniman Museum notes a falling off in the number of visitors, primarily due to discouraging irresponsible and frivolous visitors from using the museum as a promenade. A noteworthy feature of the museum is the very considerable number of living animals, vertebrates and invertebrates, shown during the year, although this must necessitate much work on the part of attendants. On the other hand, living animals are very popular and instructive. The various little handbooks issued are very good

and sold at the practically nominal price of one penny each.

The Hull (England) *Museum Publications* 30 and 31 are mainly devoted to a description of recently acquired whaling relics and contain much information as to whaling between 1598 and 1868. The whaling fleet of Hull at one time numbered 60 vessels, averaging perhaps 325 tons each; the average number of whales taken in 1821 was 14 to a ship, which gives a good idea of the former abundance of the right whale. It is interesting to speculate on the effect produced on the balance of life by the wiping out of these great animals, and the consequent sparing of billions of the minute invertebrates on which they fed.

Notes on Some Recent Additions to the Exhibition Series of Vertebrate Fossils in the U. S. National Museum figures and briefly describes several important specimens, including crania of *Triceratops calicornis* and *Diceratops hatcheri,* both types. The suggestion, made by Professor Lull, that the lateral vacuities in the frill of this last species, were the result of injuries does not seem tenable. The skeleton of the female mastodon from Michigan is most admirably mounted and the measurements given show the animal to have been about two feet lower than the adult male.

The Preservation of Antiquities, by Dr. Friedrich Rathgen, issued by the Cambridge University Press, while not a museum publication, is of very general interest. The chapters of special value relate to the development, so to speak, and subsequent preservation, of objects of bronze and iron, and the figures show some very striking results that have been obtained by the processes described. It is to be noted that, as in other branches of museum work, care, and above all, patience are necessary adjuncts. *Zapon,* so often alluded to, is the subject of an article in the *Scientific American* for June 2.

F. A. L.

THE PRESERVATION OF AMERICAN ANTIQUITIES.

WE print below the bill passed by congress and signed by the President in the preservation of American antiquities. Regulations, in accordance with the provision of Section 4, are now being formulated.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That any person who shall appropriate, excavate, injure, or destroy any historic or prehistoric ruin or monument, or any object of antiquity situated on lands owned or controlled by the Government of the United States, without the permission of the Secretary of the Department of Government having jurisdiction over the lands on which said antiquities are situated shall, upon conviction, be fined in a sum not more than five hundred dollars or be imprisoned for a period of not more than ninety days, or shall suffer both fine and imprisonment in the discretion of the court.

Sec. 2. That the President of the United States is hereby authorized, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and may reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected: *Provided,* That when such objects are situated upon a tract covered by a bona fide unperfected claim or held in private ownership, the tract, or so much thereof as may be necessary for the proper care and management of the object, may be relinquished to the Government, and the Secretary of the Interior is hereby authorized to accept the relinquishment of such tracts in behalf of the Government of the United States.

Sec. 3. That permits for the examination of ruins, the excavation of archeological sites, and the gathering of objects of antiquity upon the lands under their respective jurisdictions, may be granted by the Secretaries of the Interior, Agriculture, and War, to institutions which they may deem properly qualified to conduct such examination, excavation, or gathering, subject to such rules and regulations as they may prescribe: *Provided,* That the examinations, excavations, and gatherings are undertaken for the benefit of reputable museums, universities, colleges, or other recognized scientific or educational institutions, with a view to increasing the knowledge of such objects, and that the gatherings shall be made for permanent preservation in public museums.