

In *Gnetum Gnemon*, a gymnosperm (Fig. 2, *D*), cellular tissue is formed only at one end of the female gametophyte, the end nearest the micropyle remaining in the free nuclear condition. Any one of these free nuclei may become an egg nucleus.

In other species of *Gnetum* (Fig. 2, *E*) no part of the female gametophyte gets beyond the free nuclear condition. The number of nuclei is likely to be smaller than in *Gnetum Gnemon*.

*Peperomia*, an angiosperm (Fig. 2, *F*), shows a still more reduced condition, the mature female gametophyte containing only sixteen free nuclei. A somewhat similar condition is found in *Gunnera*, where the number of free nuclei varies from sixteen down to eight.

Most angiosperms (Fig. 2, *G*) have eight nuclei in the female gametophyte, one of these nuclei functioning as an egg nucleus. This is the most reduced condition yet described for an angiosperm. We have found, quite recently, in *Cypripedium*, a mature female gametophyte containing only four nuclei. The antipodal polar nucleus had not divided and was disintegrating. One mitosis in the micropylar end had also failed to take place. One might reasonably hope to find still greater reduction in the tropical orchids, so that while the stage shown in Fig. 2, *I*, is still hypothetical, it is not at all impossible that it may exist. The megaspore would then function directly as an egg and the four spores would correspond strictly with the egg and the three polar bodies.

The series, as a whole, shows a gradual reduction of the gametophyte from an independent plant to a parasite; then a reduction from a cellular condition to the free nuclear condition; and finally a reduction in the number of free nuclei, until (admitting the hypothetical case shown in Fig. 2, *I*) the condition shown by the animal egg with its three polar bodies is reached. The behavior of the chromosomes during the formation of the four megaspores is essentially identical with their behavior during the formation of the egg and its polar bodies.

It was only by the investigation of forms

below the angiosperms that the true nature of the female gametophyte of angiosperms became known. Perhaps a more thorough examination of animals below the Metazoa may aid in interpreting the egg and its polar bodies.

Since there would be much repetition in a discussion of the male gametophyte, this subject is omitted.

I regret that Professor Beard's work was overlooked. In this one particular Professor Lyon's criticism must be accepted. The fact, however, that Professor Beard relies strongly upon apogamy to support his theory will indicate to botanists a view-point somewhat different from mine.

It is gratifying to note that Dr. Lotsy's<sup>\*</sup> recent paper on the  $x$  and  $2x$  generations is directly in line with my theory.

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#### PRELIMINARY NOTE ON A GIGANTIC MAMMAL FROM THE LOUP FORK BEDS OF NEBRASKA.

DURING the summer of 1904 the writer was fortunate in locating an important fossil quarry in the upper series of the Loup Fork formation on the Niobrara River, four miles east of Agate P. O., Sioux County, Nebr., upon the property of Mr. James H. Cook, the Agate Springs Stock Farm. The existence of fossil bones in this locality was known to Mr. Cook as long ago as the year 1890, but he regarded the fragments of bones, when he first found them, as merely proving that the spot had been occupied by the Indians as a burying ground, they having frequented the locality in early days and frequently camped there. In August, 1904, I was guided to the spot by Mr. Cook's son, Harold J. Cook, and made some preliminary investigation. The work has been continued throughout the spring and summer of the current year under my direction. An interesting feature of the deposit is the great number of water-worn fragments of bone found in the quarry, clearly indicating that the remains were subjected to the action of a

<sup>\*</sup> Lotsy, J. P., 'Die  $x$ -Generation und die  $2x$ -Generation, eine Arbeitshypothese,' *Biol. Centralblatt*, 25: 97-117, four text diagrams, 1905.

current of water, or perhaps to the action of waves beating upon the shore of a lake. The latter seems the more probable hypothesis.

#### Family SUIDÆ.

*DINOCHÆRUS HOLLANDI*<sup>1</sup> gen. et sp. nov.

This new genus and species was recently exhumed in the Agate Springs Fossil Quarry by T. F. Olcott, a member of the Carnegie Museum field party in this region. The type consists of the greater portion of the skeleton of, perhaps, one of the most striking animals found thus far in this quarry. The animal is closely related to the genus *Elotherium* found in the Oligocene formation. The dentition is apparently somewhat more specialized than in the latter genus. There is only a faint trace of the cingulum on the inferior premolars. This cingulum terminates on the posterior base of the tooth, forming a rather heavy basal heel. There is no cingulum on the inferior molars. The dentition on the whole is characteristically similar to that of *Elotherium*, as is also the general contour of the skull. The limbs are elongated, and the general structure of the skeleton recalls that of the Oligocene genus. This similarity is of much interest when the changes which have taken place since the Oligocenè time in the *Oreodontidæ* and the *Camelidæ* are considered. The gigantic size of this Loup Fork species (the length of the cranium alone being about 90 cm.), together with the fact that the remains are found in a much later geological horizon than that in which *Elotherium* has been found, is thought by the writer to be of sufficient importance, pending a more thorough study of the type, to provisionally separate the two forms generically.

When the material is cleared up a final study of the osteology of the specimen will be made and a detailed description will appear in the publications of the Carnegie Museum.

O. A. PETERSON.

CARNEGIE MUSEUM,  
July 31, 1905.

<sup>1</sup> The specific name is given in honor of Dr. W. J. Holland, the Director and Acting Curator of Paleontology in the Carnegie Museum.

#### QUOTATIONS.

##### THE DEPARTMENT OF AGRICULTURE.

FURTHER investigation has brought to light in the Department of Agriculture additional transactions that have excited some criticism. The grand jury at Washington is still at work upon the offenses of Assistant Statistician Holmes. Chief Statistician John Hyde, who resigned and at once sailed for Europe, has been asked by Secretary Wilson to come back. He replies that he will return without delay. He is wanted as a witness before the grand jury. After a long conference with the President last week Attorney-General Moody said that the Federal criminal statutes were so antiquated that they did not meet existing conditions. Congress will be asked to make them broader and more stringent. President Jordan, of the Southern Cotton Association, demands the removal of the secretary, asserting that he is incompetent. The secretary, in whom Mr. Roosevelt has confidence, says it would be cowardly for him to resign while his department is under fire. Investigation is being made as to the connection of several prominent officers of the geological survey, as directors and stockholders, with a journal devoted to mining. It is asserted that much information obtained at the expense of the government has been published by them in that journal long before the appearance of it in the official reports, which, it is said, have been unwarrantably delayed. It is asserted in similar charges against the Fish Bureau that much information has been published in magazines by officers, with illustrations, prepared by the government, which have appeared in the official reports several months later. Dr. D. E. Salmon, the well-known head of the Bureau of Animal Industry, is criticized by some because of his association with the contractor who supplies labels (invented by himself) for use in the inspection of meat. It appears that Dr. Salmon assisted this man some years ago and was his partner for six years in a small printing business. At Dr. Salmon's suggestion he invented the label, but Dr. Salmon withdrew from the partnership very soon after the inventor obtained his first contract, in 1901, and has