whether they are, or are not, the same, I let Mr. Post have some specimens of bitter-rot and of the ripe-rot of the grape collected at least two hundred miles from where the sweet-peas grew. Seedling sweet-peas, inoculated with spores from these two sources, were killed at the point of infection in the same way that the original sweet-pea stems were killed, and other seedlings which were inoculated with pure cultures of the fungus causing the anthracnose of the sweet-pea.

It would seem, then, from the results obtained, as if the bitter-rot of the apple, the ripe-rot of the grape and the anthracnose of the sweet-pea are caused by the same fungus. A stage corresponding to the ascigerous stage of the bitter-rot has not been obtained yet in artificial cultures.

John L. Sheldon.
West Virginia Agricultural Experiment Station, Morgantown, W. Va.,
June 19, 1905.

INDICATIONS OF AN ENTOMOPHILOUS HABIT IN TERTIARY SPECIES OF QUERCUS.

The occasional development of several embryos in the fruits of recent species of *Quercus* is of interest as suggesting an entomophilous habit in the flowers of the Tertiary species of this genus.

At present normally five of the six ovules in the three-celled ovary atrophy, and the one remaining forms later a perfect embryo which fills the entire cavity of the nut. But it not infrequently happens that two embryos develop, each with cotyledons, plumule and caulicle. Experiments made by the writer show that both embryos will grow, and the twin oaks were kept until they reached a foot or more in height. Several cases were found by the writer in which three perfect embryos occurred in acorns of the chestnut oak, *Quercus prinus*. All germinated nearly equally well. Finally a single case was found in which there were four perfect embryos. This also was an acorn of the chestnut oak, which develops several embryos more readily than *Q. alba, rubra* or *tinctoria*.

Several notes have been previously published on the development of two embryos in *Quercus*, but I have not found any record of three or of four perfect embryos occurring in this genus.

The normal abortion of five ovules and reduction to one embryo seems to be an acquired character, and in the development of several embryos appears to be a reversion to an ancestral condition.

Now, it is well known that the formation of several or many embryos is characteristic of entomophilous flowers, but very rare among anemophilous.

This suggests that the oaks of the Greenland Tertiary flora were entomophilous, that their flowers were more conspicuous, and that their fruits normally developed several embryos. With the oncoming of the ice sheet the oaks moved very slowly southward because of the inadaptability of the fruit for wide dispersal. Deserted by the insects seeking the warmth farther south, the oaks may then have adopted their present anemophilous habit.

Paleobotany so far can give no evidence either for or against this theory, but later studies of the Tertiary floras may strengthen the indication now furnished by the development of two, three and four embryos in cases of reversion in *Quercus prinus*.

C. J. Maury.

BATHYGNATHUS BOREALIS, LEIDY, AND THE PERMIAN OF PRINCE EDWARDS ISLAND.

A few days ago I had occasion to examine the figure of *Bathygnathus* published by Leidy in his original description (*Jour. Acad. Nat. Sc. Phila.* (2), 11, pp. 327–330, pl. XXXIII.) and became convinced that it was not a dinosaur, as has been long supposed, but one of the most specialized of the pelycosaurs, such as occurs in the Texas region, probably a *Dimetrodon* or *Naosaurus*. I communicated with Dr. Lambe, of the Canadian Survey, indicating my belief that this settled the question of the possible occurrence of Triassic deposits in Prince Edwards Island. Almost all of the geologists of the Canadian Survey who have worked on the island have considered the rocks as Permo-carboniferous and have

admitted the possibility of Triassic rocks in the neighborhood of New London only because *Bathygnathus* was found there and was considered as a Triassic dinosaur. Hardly had the letter been posted when I received from Dr. von Huehne his paper on the 'Pelycosaurier im Deutschen Muschelkalk' (*N. Jahrb. f. M. G. u. P. Beilage,* Band XX., p. 343), in which he arrives at exactly the same conclusion as to the nature of the fossil and the age of the beds. Aside from settling the age of the beds of Prince Edwards Island the discovery is of interest in extending the range of these forms which have previously been known from Texas, Vermillion County, Ill., and Bohemia. It is interesting also to note, as pointed out by von Huehne, that Owen in the *Q. J. G. S.,* 1876, pointed out that *Bathygnathus* was probably related to the theriodonts. This suggestion has been disregarded in favor of the dinosaurian nature of the fossil and has so kept alive the error in the age of the beds.

E. C. CASE.

A SYSTEM FOR FILING PAMPHLETS.

No system for filing pamphlets will meet the requirements of all workers, but a plan that I have used for some years has proved so satisfactory and met with the approval of so many of my friends that I venture to present a brief outline of it, in order that others may perhaps be benefited. I make no claim for originality except, perhaps, in the size of the boxes.

I use pasteboard boxes very much like those used by the Book Lovers' Library to protect its volumes, ten and one half inches high, seven and one fourth inches deep and one inch thick, the back or edge nearest the wall, as they stand on the shelf, being open.* Each box holds only a small number of pamphlets, and therein lies the chief advantage, as the small boxes facilitate a great subdivision of subjects.

In my series of 'Birds, geographic,' for instance, I have a box for faunal papers for every state in the United States and for some states several boxes, the subdivision in these cases being by authors. Every faunal bird paper is marked in the corner 'Bg,' followed by a number indicating a country, the United States being, for instance, 4, with each state designated by a decimal number, so that a Pennsylvania faunal bird list would be marked 'Bg 4.9,' the Pennsylvania box bears this label on the back and also one inscribed 'Birds of Pennsylvania.'

I have then a card catalogue of all my separata, etc., arranged by authors with a reference to the box number. It is thus possible to take from the shelf at once all the papers relative to a given subject or by the card list to locate any paper that may not be where I expected to find it or to see if I have a paper by a certain author.

In the case of a composite paper it may be arranged where most frequently sought and a cross reference be entered on a stiff sheet of octavo paper placed in the other box where it might be arranged. In fact, a sheet like this in every box with cross reference titles is of great convenience.

Bound volumes may be arranged in their proper place on the shelves and catalogued just like the pamphlets.

This system permits of endless variations in the method of classification. For my ornithological series I have the following divisions:

Ba, anatomy; Bb, bibliography; c, classification; d, destruction and extinction; e, economic ornithology; f, food; g, geographic lists; h, hybrid, albinos, etc.; l, museum catalogues; m, molt and pterylography; n, migration; o, nests and eggs; s, systematic monographs, etc.; v, song. Bg and Bs are, of course, the large series, the others occupying only two or three boxes each.

The arrangement of pamphlets relating to so broad a subject as ornithology, by authors, is almost useless, as it is impossible to remember all who have written, for instance, on the birds of Pennsylvania. My plan gives you all these papers together on the shelf without consulting the card list, while if the arrangement by authors is needed the cards furnish it.

WITMER STONE.

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