I got *Monoclonius crassus;* two of these I got. Both are *M. crassus.* Two you got, one larger (*M. spenocerus*) and one smaller (*M. fissus*) than mine. It is about these latter that I want information. Marsh has been duplicating this work in his usual shameless style. According to him, nothing has been done in this field before. He made a good beginning by describing the horns of one of these fellows as a new species of bison. Answer soon. Very truly,

E. D. Cope.

I remember distinctly helping the professor collect his type specimen. It was on the south side of the river, between our camp and Cow Island. The specimens I collected and those of Mr. Isaac were near together, on the north side of the river, about five miles below Cow Island Station. To my knowledge, Cope never collected on this side. He took passage on a steamboat the day after we crossed, about October 15. Mr. Isaac and myself made a camp about three miles below the station afterwards, and the material referred to was found some distance below our camp. These thick deposits Cope called Cretaceous No. 6, or Judith River group. So I was surprised to find none of the species of *Monoclonius* in the Judith River column. The fish *Hedronchus,* named in my honor, came, I am sure, from the bone-beds in the Dog Creek region. To help solve the problem of the age of these beds it seems to me one way would be to put the Dog Creek fossils in their proper place in the column, and not confuse them with the *Monoclonius* material that was only found by us near Cow Island. If the type localities are systematically studied and the stratigraphical characters fully understood, proof may be forthcoming that the *Monoclonius* beds are older than the Judith River. They are certainly forty miles further down the Missouri than the unmistakable Judith River beds that rest on the Fort Pierre and Fox Hills at Dog Creek. Charles H. Sternberg.

SEEDS BURIED IN THE SOIL.

Numerous cases are on record in which seeds are said to have remained dormant in the soil for some considerable time, varying from a few years to many centuries. Such reports have always been and will continue to be of much popular interest because many of these seeds, when taken, by chance, from their accidental burying ground and exposed to conditions favorable for germination, have, in many instances, indicated a remarkable prolongation of vitality. It must, however, be remembered that such reports are based chiefly on accidental results, in most cases being even highly speculative, and are, therefore, of but little value in furnishing reliable data as to the length of time seeds will retain their vitality when buried in the soil.

The time required for the completion of such experiments must necessarily extend over a number of years, and for this reason but very few actual experiments have been made. The most important are those of Dr. Beal, as reported in the *Michigan Farmer,* November 30, 1901, in which he found that seeds of twelve out of twenty-one species responded to germination tests after having been buried for twenty years.

In so much as the question is continually being asked, 'How long can seeds remain buried in the soil and still retain their power of germination?' we have started a series of experiments in connection with our work in the Seed Laboratory of the U. S. Department of Agriculture, with the hope of securing some definite data and thereby answering this question once for all. For these experiments we have taken 112 different samples of seed, representing 109 species, 84 genera and 34 families. These have been so selected as to include seeds of most of our common field and garden plants, as well as seeds of many of the grasses and our most noxious weeds. These seeds were first carefully counted, of most samples 200 seeds being taken; however, only 100 of some of the larger seeds such as beans, peas, corn, etc. The seeds were all of the harvest of 1902, save two of the duplicate samples of red clover.

Preparatory to burial the previously counted samples of seed were mixed with dry clay soil and packed in well-baked, porous clay pots of four, three and two inches diameter, depending on the size of the seeds; inverted clay saucers serving as covers for the various pots.

These pots were buried December, 1902, on the Arlington farm of the United States Department of Agriculture, in a heavy clay soil at three different depths. Eight complete sets are covered to a depth of six or eight inches, such as would take place in deep ploughing. Twelve complete sets are buried at a depth of twenty inches, where they will be comparatively free from the action of frost. Twelve more complete sets are buried from three to three and one half feet, thus insuring fairly uniform conditions as to temperature, moisture, etc.

In all 32 complete sets or 3,584 pots have been buried. It is proposed to take up one of each of these sets from time to time and test for germination. The present plan is to make the tests at the end of one, two, three, five, seven, ten, fifteen, twenty, twenty-five, thirty, forty and fifty years. With this scheme the last set of those buried at a depth of six to eight inches will be taken up for test after the lapse of twenty years, and, indeed, it is quite probable that most of this series will have germinated or decayed long before this; in fact we feel reasonably sure that many will succumb during the first year. Similar results will undoubtedly be had from those buried at greater depths, though here vitality will be retained longer. Many, of course, will live for a number of years; on the other hand, it will be quite surprising if any respond to germination tests at the end of fifty years.

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SOME NEW GENERIC NAMES OF MAMMALS.

IN preparing an index of the genera of mammals, a number of names have come to light which have been previously used for other groups. Some of these names are in current use and apparently have no synonyms which can be substituted for them. The following new names are therefore proposed:

Eosaccomys—new name for *Saccostomus* Peters, 1846, which is preoccupied by *Saccostoma* Fitzinger, 1843, a genus of reptiles.

Eucervaria—new name for *Cervaria* Gray, 1867, which is preoccupied by *Cervaria* Walker, 1866, a genus of Lepidoptera.

Helicotragus—new name for *Helicophora* Weithofer, 1889, which is preoccupied by *Helicophora* Gray, 1842, a genus of Mollusca.

Lophocebus—new name for *Semnocebus* Gray, 1870, which is preoccupied by *Semnocebus* Lesson, 1840; a genus of lemurs.

Morenella—new name for *Morenia* Ameghino, 1886, which is preoccupied by *Morenia* Gray, 1870, a genus of chelonians.

Nannospalax—new name for *Microspalax* Nehring, 1898, which is preoccupied by *Microspalax* Trouessart, 1885, a genus of Arachnida.

Necronycteris—new name for *Necromantis* Weithofer, 1887, which is preoccupied by *Necromantes* Gistel, 1848, a genus of Mollusca.

Neocothurus—new name for *Cothurus* Palmer, 1899, which is preoccupied by *Cothurus* Champion, 1891, a genus of Coleoptera.

Octodontomys—new name for *Neoctodon* Thomas, 1902, which is preoccupied by *Neoctodon* Bedel, 1892, a genus of Coleoptera.

Tapirella—new name for *Elasmognathus* Gill, 1865, which is preoccupied by *Elasmognathus* Fieber, 1844, a genus of Hemiptera.

Tytthoconus—new name for *Microconodon* Osborn, 1886, which is preoccupied by *Microconodus* Traquair, 1877, a genus of Pisces.

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MUSEUM NOTES.

THE *Annual Report* of the director of the Carnegie Museum shows good progress in various directions, but particularly in the line of paleontology, where valuable additions have been made in the shape of specimens of the larger dinosaurs and of Oligocene mammals. Important additions have been made to the entomological collections, which are now among the most important in the United States, and there has been obtained by purchase the only specimen of the almost extinct *Rhinoceros simus* in this country. Pending the important additions to the museum building which are to be made the director pro-