Geranospizæ (1873).*	Circinæ, part? (or Circætinæ, part?).
Urubitingæ (1873).	Urubitinginæ,† + Buteoninæ, part.
Buteones (1873).	Buteoninæ,‡ part.
Haliaeti§ (1873).	Milvinæ.
Aquilæ‖ (1873).	Aquilinæ.
Circaëti¶ (1873).	Circaëtinæ.
Archibuteones** (1873).	Buteoninæ, part.
Morphni (1876).	Thrasaëtinæ.

The only group of Mr. Pycraft's classification having no equivalent in my arrangement is his subfamily Vulturinæ (comprising the genera *Gypohierax, Neophron, Gyps, Vultur* and *Otogyps*††). This subfamily he locates though the latter he places *also* in Circætinæ! *Urotriorchis* I have not been able to examine, but *Geranospizias* is certainly not closely related to *Circus*, but seems to come very near to *Polyboroides.*

* My Geranospizæ included *Polyboroides*, a genus not mentioned by Pycraft.

† Whether Pycraft would include more than *Urubitinga* is uncertain. My group contained, in addition to that genus, *Buteogallus, Heterospizias,* and *Parabuteo* (*'Antenor'*), the last of which Pycraft places in his Buteoninæ, the other two not being mentioned by him.

‡ Pycraft's Buteoninæ includes *Archibuteo,* which I had placed by itself, *Parabuteo* (*'Antenor'*), which I placed in Urubitingæ, and *Busarellus,* which I put with Haliaeti.

§ My Haliaeti included *Thalassoaëtus, Haliaeëtus, Polioaëtus, Haliastur, Milvus,* and *Busarellus,* to which I would now add *Gypoictinia.* Pycraft's Milvinæ includes *Haliaeëtus, Polioaëtus, Haliastur,* and *Milvus,* to which are *very doubtfully* added *Ictinia* and *Rostrhamus.*

‖ My Aquilæ at first included, besides the genera comprising Pycraft's Aquilinæ, *Harpyhaliaëtus, Morphnus,* and *Thrasaëtus,* but in 1876 the last two were taken out and designated as a separate group, Morphni, exactly equivalent to Pycraft's Thrasaëtinæ. The correct position of *Harpyhaliaëtus* is, with me, a matter of doubt, but I am now inclined to the opinion that it should either go into the Urubitingæ or constitute a monotypic group.

¶ My Circaëti consisted of *Circaëtus, Spilornis,* and *Helotarsus;* Pycraft's of the first and last, the second not being mentioned by him.

** Consisting of *Archbuteo* only.

†† It would be interesting to know where Mr. Pycraft would place *Gypaëtus.* between the Thrasaëtinæ and Circaëtinæ, a position not far different from that I would have given it had occasion required, as is indicated on page 227 of my 'Outlines.'

That Mr. Pycraft was unable to give the preparation of his paper the amount of time and care which the subject would have justified is obvious from several slips, nomenclatural and otherwise. For example, he places the Polybori (his Polyborinæ) both in the Falconidæ and Buteonidæ (p. 315), and *Geranospizias* in both Circaëtinæ and Circinæ! In different places the terms Accipitridæ and Buteonidæ are used for the same family. There are also some errors in the explanations to the plates, fig. 10, pl. 32, representing *Catharistes,* not *Serpentarius,* Fig. 11 on the same plate being the latter, though not so indicated in the text on p. 320; while Fig. 5, pl. 32, is *Polyborus,* not *Ibycter,* as stated.

On the whole, Mr. Pycraft's paper is an excellent and most important contribution to a very interesting ornithological subject, and it is to be hoped that after extending his investigations to numerous forms not mentioned by him and therefore presumably not examined, he may finally give us the benefit of his studies in a more elaborate treatise.

ROBERT RIDGWAY.

U. S. NATIONAL MUSEUM,
December 11, 1902.

ELEPHAS COLUMBI AND OTHER MAMMALS IN THE SWAMPS OF WHITMAN COUNTY, WASHINGTON.

ON the 27th of November, 1877, on my way down the Columbia River, from the Dalles, Oregon, I met an army surgeon who told me of a deposit of extinct animals, discovered the year before in 'mud-springs,' in the swamps of Pine Creek valley, Whitman County, Washington, about 100 miles north of Walla Walla. Mr. Copeland, in probing one of these springs on his farm with a long pole, thought the end entered the occipital foramen of a large skull. He had a long iron rod with grappling hooks at the end made. With this tool, and with the assistance of his neighbors he was able to dislodge and bring to the surface a very complete skull of the

mammoth. Continued labor recovered from the bed of gravel below a large part of the skeleton, all beautifully preserved. This aroused a great deal of excitement in that region. While the curiosity of the people was at white heat, a showman bought the skeleton for a thousand dollars, and put it under canvas for public exhibition. I afterward met this gentleman, who offered the specimen, securely packed for transportation at San Francisco, for a few hundred dollars. I wrote to Professor E. D. Cope, in whose employ I was, giving him all the particulars, and address of the possessor, whose name I have now forgotten. On the strength of the information given me by the surgeon, I resolved to conduct an expedition to the Pine Creek region. I left Fort Walla Walla sometime in January, 1878. At Moscow, Idaho, I secured the services of Joe Huff, who furnished a team and wagon. We pressed on through Colfax to Pine Creek (it heads in the high hills not far from where we came to it, at a stockade that had been built to protect the settlers from Indians a few years before; we made our permanent camp here), and spent most of our time until April, when we started for the John Day region, in eastern Oregon. The mouth of the spring we explored was only two feet above the creek. To add to our discomfort, it rained nearly every day; but with unfailing enthusiasm we bailed mud and water week after week. The larger we got the excavation, the more water to bail out. In enlarging the pit we found the walls of the spring were composed first of a thick bed of peat, then a stratum of compact yellow clay, then gravel, in which the bones were deposited, about twelve feet below the surface. In spite of our strenuous labors, we were only rewarded with the discovery of a number of fine skulls of the buffalo. In one we found a flint arrow-point and bones of the skeleton. The farmer-fossil-hunters had been more fortunate. The so-called 'mud-springs' in this region often cover acres of swamp land along the upper reaches of Pine Creek. They usually have a circular outline, and are full of thick mud; in wet weather they are in a state resembling ebullition. In very dry weather they are covered with a crust of dried mud that is cracked in all directions. These crusts not being strong enough to support much weight, they become death traps to the animals that attempt to cross them. Many of the farmers' animals were lost in them. On March 1, 1878, I met Mr. Copeland for the first time. He told me he had taken nine specimens of the mammoth from the swamp on his ranch. These, as I remember, he had deposited in a college in Forest Grove, Oregon. He discovered a flint spear-point in the gravel above the mammoth bones, associated with charred and partly petrified wood that bore the marks of tools upon it, also deer, buffalo and bird bones. On March 2 we went with Mr. Copeland to see the springs on the Donahue brothers' ranch up Pine Creek. Here the swamp covered seven or eight acres, and the owners had made large excavations. I was told they had recovered a large number of elephant remains. I found on the dump a few elephant bones, with those of the buffalo, deer, etc. I do not remember what became of the specimens discovered by these gentlemen. Although I did not actually find elephant bones mingled with the buffalo we found so common in our spring, I never doubted, from what I saw and heard at the other excavations in the immediate neighborhood, and where the collectors went through the same kind of peat, clay and gravel as we had gone through, that man, the buffalo, elephant and many existing species once lived together in eastern Washington. It seems to me these swamps should receive careful attention from paleontologists. A systematic series of explorations here may give valuable information of early man and the animals with whom he associated.

The skull of *Elephas Columbi* above referred to is now in the collection of the American Museum of Natural History, with other fossils of the Cope collection.

Charles H. Sternberg.

HERBARIA FORMATIONUM COLORADENSIUM; F. E. ET E. S. CLEMENTS.

One of the phases of botany now in active advance both in this country and abroad is