

## SCIENTIFIC TAXIDERMY FOR MUSEUMS.

(BASED ON A STUDY OF THE UNITED STATES GOVERNMENT COLLECTIONS.)

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In a valued communication, dated January 16, 1893, the present writer was honored by a request from the United States National Museum to furnish to it a paper upon what may briefly be termed "scientific taxidermy" in its widest sense. My attention was especially invited to the progress that had been made in the art of taxidermy, as exemplified on the part of the various methods used in the preparation of, and the modes of mounting resorted to, in the case of all kinds of animals for museum exhibition. It was proposed that in a general way this study should review the field, in so far as the collections contained in the U. S. National Museum and Smithsonian Institution were concerned, from those times when specimens of mounted animals were first being made by those institutions to the day when the opening of the World's Columbian Exposition at Chicago permitted people to see, in the varied groups and single examples of preserved animals from nearly every department in nature sent there, what could be accomplished in such matters through the operations of skilled moderns in the taxidermic art. What was expected of me was further definitely defined, in the letter to which reference is made above, in the following words: "We should like to have your unbiased opinion of the different pieces and kinds of work, whether favorable or unfavorable, and should be glad to have you indicate, so far as you feel disposed to do so, what lines of work, in your opinion, promise the best results if carried further, and what you think should be abandoned." This injunction, when faithfully performed in the case of any art whatsoever, is the only proper test of our progress in it, and it is through comparison alone of early accomplishments, work recently performed, and what is being done in the particular line at the moment, that we can inform ourselves precisely where we stand. Very soon it became possible for me to direct my attention to this matter, and a preliminary overlook of the field convinced me that my chief duty lay in making just criticism of the results attained on the part of the artist in taxidermy, rather than an enumeration and description of all the details of

technique of that art. Much that refers to the last-named class of work has been and will be shortly still more thoroughly set forth in certain papers and reports published by the National Museum. Some valuable instructions of that kind, I understand, are in press at the present writing, and ere long the scientific taxidermist will have before him all that refers to correct methods of the mounting of animals, as well as plastic modeling and everything that has any bearing thereupon.

The present paper, then, will have little or nothing to do with what might properly be called the chemistry and mechanics of taxidermy, but will rather deal with it from the standpoint of the art student and biologist. At some points these two lines, however, converge, but never distinctly intersect each other; and my chief object will have been attained, if this paper proves itself to be a useful adjunct to the others upon kindred lines of inquiry. Properly, it will fill the place of the last of the series, for the reasons that have just been stated.

History goes to show that there has been just as much of an evolution, of progressive advancement, in the science and art of taxidermy as there has been in the case of the necessity for, the growth and improvement in the building of, the stocking, and the management of museums. To a very large extent these two developments have been *pari passu* in nature, and, in one sense, they are quite dependent upon each other. To instance my meaning, it may be said that a handsome, instructive, and scientifically preserved group of animals may utterly fail of a useful purpose by being placed upon exhibition in some poorly lighted, indifferently ventilated, and otherwise unsuitable museum-hall; while on the other hand no amount of architectural beauty and perfectness in the latter will ever serve to shield a group of animals that have been mounted by a person ignorant in all the departments of scientific taxidermy, from the criticism that work of that kind is sure to have continually poured down upon it by the intelligent natural historian.

It can be shown, then, that the taxidermic art, as in the case of all the arts and sciences, has had its dawn, having been nursed in a cradle of crude beginnings, far back in history, and since which time it has enjoyed a very remarkable career of development. To me there is no doubt but what it came into being with such pristine pursuits as prehistoric tanning, the embalming of the human body, and those of certain domestic animals as the cats and dogs found in prehistoric remains of Egypt and elsewhere. Sure it is that Hanno, the very ancient Carthaginian navigator, in the record that he has left us of his African explorations, made five centuries before Christ, gives an account of his discovery of the gorilla, and "having killed and flayed them, we conveyed their skins to Carthage." There they were preserved for many generations, and are, no doubt, the *Gorgones* described by Pliny (146 B. C.).

Our own Pueblan Indians, as the Zuñians and others, make very good "flat skins" of small birds to-day, an art no doubt traceable in

them to the Mexicans, and the latter have probably practiced it for ages.

Montezuma, as stated by Cortez, possessed robes covered with the skins of the Trogon and other brilliantly plumaged birds. From the making of these flat skins for personal ornament to the desire to preserve in their natural appearance similar forms, as well as other small animals of all kinds, for the ornamentation of habitations, is both easy to be imagined, and very probable what took place. Gradually there was a demand for that kind of work, and it fell to the hands of those most skilled in its performance. They were the early taxidermists. Before specialization was ever dreamed of for the early arts of whatsoever kind, there always, so history teaches, existed a kind of an affinity bonding more or less closely together, the naturalist, the medical man, and the conservator of the curious in nature. Shakespeare's portrayal of the London apothecary is illustrative of this, within whose

Needy shop a tortoise hung,  
An alligator stuffed, and other skins  
Of ill-shaped fishes.

Complete differentiation in certain quarters, in these days of the manhood of those sciences, has not as yet been thoroughly brought about, and even in some of the old German cities of the present time we yet hear of organizations known as "The Society of Naturalists and Physicians," and in some of our own late expeditions made under the auspices of the Government, the duties of "surgeon and naturalist" are relegated to one individual.

Now, although the mere preserving the skins of animals is an operation to be easily traced back through nearly all races of people to the dawn of history, this does not altogether hold true with the "mounting" of animals.\*

Taxidermists are quite agreed that this phase of the art is of comparatively quite modern origin. For instance, Montagu Browne has remarked that—

Little is known of the beginnings of the practice of the "stuffing" or "setting up" of animals for ornament or for scientific purposes; and it is highly probable, from what we gather from old works of travel or natural history, that the art is not more than some three hundred years old. It was practiced in England towards the end of the seventeenth century, as is proved by the Sloane collection, which in 1725 formed the nucleus of the collection of natural history now lodged in the galleries at South Kensington.

It was not until the middle of last century that any treatise devoted to the principles of the then little-understood art was published in France, Réaumer's treatise (1749) being probably the first. This was followed at intervals by others in France and Germany, until the beginning of the present century, when the English began

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\* Probably, as Mr. Goode informs me, the oldest museum specimen in existence is a rhinoceros still preserved in the Royal Museum of Vertebrates in Florence. This was for a long time a feature of the Medicean Museum in Florence, and was originally mounted for the museum of Ulysses Aldrovandus in Bologna. It dates from the sixteenth century.

to move in the matter, and several works were published, notably those by E. Donovan,\* W. Swainson,† Capt. Thomas Brown,‡ and others. These works, however, are now inadequate, and since the Great Exhibition of 1851, when the Germans and French taught British taxidermists the rudiments of scientific treatment of natural objects, several works have appeared upon the subject from the pens of American and English authors, such as J. H. Batty,§ R. Ward,|| and Montagu Browne.¶

That the art is recent was also held by Dr. Holder, who, in an able address given before the Society of American Taxidermists, said that the—

First authentic examples in this comparatively new art with which we are familiar are those produced through the patronage of the Prince Maximilian, of Nieu Wied, Germany. This distinguished naturalist had spent several years in exploring the bird region of North and South America. Equipped with every needful appliance for successful research, he included in the personnel of his staff a practical taxidermist, and the numerous species of American birds and mammals, embracing many types of great value, testify to the thorough exploration which the Prince accomplished in these regions. It was the good fortune of the American Museum of Natural History to come into possession of the entire collection of natural objects which formed the well-known museum of this naturalist, and thus, through this collection, we have representations of the earliest period of the art.

Among the numerous examples contained in the Maximilian collection are a number that yet bear the original label in the handwriting of the Prince. The frequent occurrence of *Meiner Reiser* (my journey), accompanied by dates from 1812 upwards, a period comprising a full three score years and ten, is recorded testimony of great historical value. Unscathed as those specimens are by museum pests, they present a most satisfactory evidence of the reliability of arsenical treatment as a means of perpetuation well nigh indefinite. How much earlier the art was practiced we have no definite knowledge. The numerous stuffed skins of reptiles, or rather mummies, found in Egyptian tombs naturally claim our notice as perhaps the earliest examples.\*\*

Extending over a very considerable period of duration we next find the art of taxidermy passing through a stage of its development, of which no end of examples quite parallel with it might be cited from

\* Instructions for Collecting and Preserving Various Subjects of Natural History, London, 1794.

† The Naturalist's Guide for Collecting and Preserving Subjects of Natural History and Botany, London, 1822.

‡ Taxidermist's Manual, Glasgow, 1833.

§ Practical Taxidermy and Home Decoration, New York, 1880.

|| Sportsman's Handbook of Practical Collecting and Preserving, London, 1880.

¶ Practical Taxidermy, London, 1879, second edition, 1884; also, article Taxidermy, Encycl. Brit., ninth edition, vol. XXIII, p. 89, from which the above quotation is made.

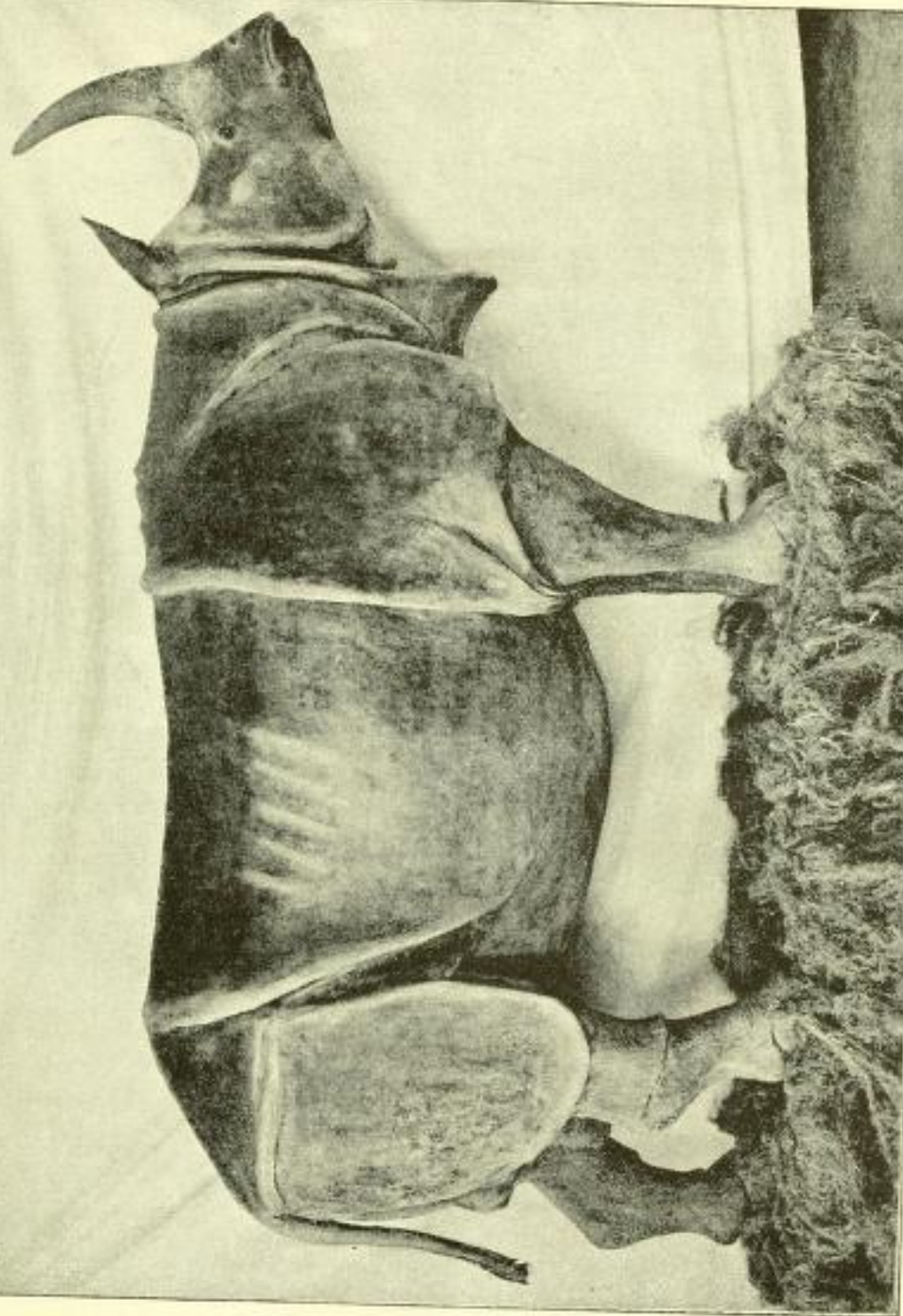
\*\* J. B. Holder, Dr. Third Annual Report of the Society of American Taxidermists, Washington, 1884, p. 40. In this connection it is well worthy of notice that in the same report Mr. L. M. McCormick (then of the U. S. National Museum) presents us with a most valuable and useful Bibliography of Taxidermy (pp. 91-112), wherein the earliest work cited on the art is that of Johann Daniel Geire, which consists of merely two pages from the *Miscell. Acad. Nat. Curios*, entitled "De vernice ad conservanda insecta et animalia," being published December 2, 1689. Nothing of any importance, however, appearing between that date and the well known work of Ferchault de Réaumur, which was given to the world in 1748.

*motacilla*) have built their nest. The male and female birds are seen approaching it, as they leisurely hop along the roots and twigs of plants which protrude from the side of the bank.

Of all the specimens on exhibition in the collections of the American Museum, none have a greater attraction for the observer and visitor there than the admirable series of bird groups, and one of the most life-like of these is the beautiful subject of the third plate in this series (Plate XCIV). It represents a pair of robins (*Merula migratoria*) with their nest in an apple tree, the latter being in full bloom of early summer.

The fourth plate in the supplemental series (Plate XCV) represents a group of opossums (*Didelphis virginiana*), male, female, and a number of young ones. In many respects it resembles the similar groups of these animals which are to be seen in the U. S. National Museum, and which have been described in the body of this paper. The group represented in this plate was prepared and designed by Mr. Jenness Richardson at the American Museum of Natural History in 1891. It is an especially fine piece of work, and although it does not contain as many specimens as the National Museum group, it is hardly the less instructive on that account.

In so far as the larger mammals are concerned, there is probably not a piece in the entire collection of the American Museum of Natural History that can in any particular compare with the superb specimen of the huge pachyderm shown in Plate XCVI. It is the Indian rhinoceros "Bombi" (*Rhinoceros unicornis L.*). This specimen was mounted at the American Museum of Natural History in 1890 by Mr. Richardson and his assistants. The data for the work consisted in measurements taken from the animal when alive, and also from a photograph obtained at the same time. After having been mounted, it was properly colored after a living specimen in the Zoölogical Gardens of Philadelphia. It is probably one of the best mounted specimens of this species in the United States.



INDIAN RHINOCEROS "Bohai" (*Rhinoceros unicornis*, L.)  
(From a photograph of the specimen in the American Museum of Natural History, New York City. Mounted by  
Jenness Richardson and assistants in 1896.)