
Tucholsky
Wagner
Zola
Scott
Sydow
Schlegel
Turgenev
Wallace
Fonatne
Freud
Twain
Walther von der Vogelweide
Fouqué
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Frey
Fechner
Fichte
Weiße Rose
von Fallersleben
Kant
Ernst
Frommel
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Eichendorff
Tacitus
Dumas
Fehrs
Faber
Flaubert
Eliasberg
Ebner Eschenbach
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Feuerbach
Fock
Zweig
Eliot
Vergil
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Goethe
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Elisabeth von Österreich
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Lichtenberg
Rathenau
Trackl
Stevenson
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Lenz
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Hanrieder
Dach
Verne
von Arnim
Hägele
Hauff
Humboldt
Reuter
Karrillon
Rousseau
Hagen
Hauptmann
Gautier
Garschin
Damaschke
Defoe
Hebbel
Baudelaire
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Herder
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Schopenhauer
Darwin
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Morgenstern
Klee
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Luxemburg
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La Roche
Horaz
Musil
Machiavelli
Kierkegaard
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Kraus
Navarra
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Marie de France
Laotse
Ipsen
Liebknecht
Nietzsche
Nansen
Ringelnatz
Marx
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von Ossietzky
May
vom Stein
Lawrence
Irving
Petalozzi
Knigge
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# Practical Taxidermy A manual of instruction to the amateur in collecting, preserving, and setting up natural history specimens of all kinds. To which is added a chapter upon the pictorial arrangement of museums. With additional instructions in modelling and artistic taxidermy.

Montagu Browne

## Imprint

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*Scanner's remarks.**

PRACTICAL TAXIDERMY

PREFACE TO SECOND EDITION.

THE First Edition of "Practical Taxidermy" having now run through the press — with, I venture to hope, some profit to students of the art, if I may judge from the many hundreds of letters I have from time to time received — the publishers have invited me to revise such parts of the work as may be expedient, and also to add many technical methods of modelling animals an artistic manner.

I do this the more readily because of the narrow way in which most professional Taxidermists bolster up their art in a secret and entirely unnecessary manner — unnecessary because amateur can, but by the severest application, possibly compete with the experience of the technical or professional worker. No pictorial artist ever pretends he has a special brush or colours with which he can paint landscapes or sea pieces at will; he knows that only thorough mastery of the technicalities of his art - supplemented by wide experience and close application - enables him to succeed as he does, and to delight people who, seeing his facility of handling, may imagine that picture painting is very easy and could be readily acquired — perhaps from books. So it is with the Taxidermist. Those, therefore, who procure this book, thinking to do all attempted to be explained therein without long study and without a knowledge of anatomy, form, arrangement, and colour, may put it on one side as useless. These pages are merely an introduction to a delightful art, which must be wooed with patient determination and loving pains until technical skill invests it with beauty.

If I can be of any assistance to my readers, I invite them to write to me if at any time they are puzzled or temporarily disheartened; merely asking them to remember

(1) — That, not being in business, I cannot of course answer purely business communications; and (2) — Not being a man of infinite leisure, it must also be remembered that a properly directed envelope for return to the inquirer is of consequence when minutes are precious. Unlike the Prime Minister, I do not like post-cards, and never answer them if from unknown correspondents.

I may here mention that this edition is not only considerably enlarged, but has several woodcuts and four plates added, three of which latter have been engraved from photographs specially taken for this work.

I say now, in conclusion, work hard, study hard, and look to good modellers and painters — and not to bird-stuffers — for conceptions of form, arrangement, and colour, and in the end, believe me, you will achieve a better success than attends the labours of those who follow in the old paths of careless or inartistic Taxidermy.

MONTAGU BROWNE.

LEICESTER.

# PRACTICAL TAXIDERMY.

## CHAPTER I.
## THE RISE AND PROGRESS of TAXIDERMY.

TAXIDERMY, which is derived from two Greek words, a literal translation of which would signify the "arrangement of skins," appears to have been practised in a limited degree ages ago, for may we not say without doubt that the first taxidermists were the ancient Egyptians, who, despite the fact that they seldom or never appear to have removed the skin as a whole, as in our modern methods, yet, taking into consideration the excellent manner in which they preserved their human or other bodies for thousands of years by the aid of injections, spices, essential oils, or what not, they may, I think, be fairly placed in the front rank as the first taxidermists the world has known. For an account, of the arts used in embalming see Herodotus, who says:

In Egypt certain persons are appointed by law to exercise this art (embalming) as their peculiar business; and when a dead body is brought them they produce patterns of mummies in wood imitated in painting, the most elaborate of which are said to be of him (Osiris) whose name I do not think it right to mention on this occasion. The second which they show is simpler and less costly; the third is the cheapest. Having exhibited them all, they inquire of the persons who have applied to them which method they wish to be adopted, and this being settled, and the price agreed upon, the parties return, leaving the body with the embalmers.

In preparing it according to the first method, they commence by extracting the brain from the nostrils with a curved iron probe, partly clearing the head by this means, and partly by pouring in certain drugs; then, making an incision in the side with a sharp Ethiopian stone, they draw out the intestines through the aperture. Having cleansed and washed them with palm wine they cover them with pounded aromatics, and afterwards filling the cavity with powder of pure, myrrh, cassia, and other fragrant substances, frankincense

excepted, they sew it up again. This being done, they salt the body, keeping it in natron seventy days, to which period they are strictly confined. When the seventy days are over they wash the body and wrap it up entirely in bands of fine linen smeared on their inner side with gum, which the Egyptians generally use instead of glue. The relatives then take away the body, and have a wooden ease made in the form of a man, in which they deposit it, and, when fastened up, they keep it in a room in their house, placing it upright against the wall. This is the most costly method of embalming.

For those who choose the middle-kind, on account of the expense, they prepare the body as follows: They fill syringes with oil of cedar, and inject this into the abdomen, without making any incision or removing the bowels, and, taking care that the liquid shall not escape, they keep it in salt during the specified number of days. The cedar oil is then taken out, and such is its strength, that it brings with it the bowels and all the inside in a state of dissolution. The natron also dissolves the flesh, so that nothing remains but the skin and bones. This process being over, they restore the body without any further operation.

The third kind of embalming is only adopted for the poor. In this they merely cleanse the body, by an injection of syrmoea, and salt it during seventy days, after which it is returned to the friends who brought it.

The account given by Diodorus is similar, if we except the cost and time of embalming. The most expensive way of embalming costs a talent of silver (about 250 pounds sterling); the second, twenty-two minae (60 pounds); and the third is extremely cheap. The persons who embalm the bodies are artists who have learnt this secret from their ancestors. They present to the friends of the deceased who apply to them an estimate of the funeral expenses, and ask them in what manner they wish it to be performed, which being agreed upon, they deliver the body to the proper persona appointed to that office. First, one who is denominated the scribe, marks upon the left side of the body, as it lies on the ground, the extent of the incision which is to be made; then another, who is called the dissector, cuts open as much of the flesh as the law permits with a sharp Ethiopian stone, and immediately runs away, pursued by those

who are present throwing stones at him, amidst bitter execrations, as if to cast upon him all the odium of this necessary act, for they look upon everyone who has offered violence to, or inflicted b wound or any other injury upon a human body to be hateful; but the embalmers, on the contrary, are held in the greatest consideration and respect, being the associates of the priests, and permitted free access to e temples as sacred persons.

As soon as they have met together to embalm the body thus prepared them, one introduces his band through the aperture into the abdomen, and takes everything out except the kidneys and heart, another cleanses each of the viscera with palm wine and aromatic substances; lastly, having applied oil of cedar and other things to the whole body for wards of thirty days, they add myrrh, cinnamon, and those drugs which have not only the power of preserving the body for a length of time, but of imparting to it a fragrant odour. It is then restored to the friends of the deceased; and so perfectly are all the members preserved even the hair of the eyelids and eyebrows remains undisturbed, and the whole appearance of the person is so unaltered that every feature may be recognised.

Sir J. Gardener Wilkinson ("Manners and Customs of the Ancient Egyptians") from whom I have quoted, says that —

"The extraction of the brain by the nostrils is proved by the appearance of the mummies found in the tombs; and some of the crooked instruments (always of bronze) supposed to have been used for this purpose have been discovered at Thebes."

The preservatives appear to have been of two classes, bituminous and saline, consisting, in the first class, of gums, resins, asphaltum, and pure bitumen, with, doubtless, some astringent barks powders, etc.., rubbed in. Mummies prepared in this is way are known by their dry, yet flexible skins, retracted and adherent to the bones; features, and hair, well preserved and life-like. Those mummies filled with bitumen, have black skins, hard and shining as if varnished, but with the features perfect, having been prepared with great care, and even after ages have elapsed, are but little susceptible to exposure.

Of the mummies of the second class (also filled with resins and asphaltum), we must assume that their skins and flesh have been

subjected to sodaic or saline products; for Boitard, in a work published at Paris in 1825, says that an injection is made with oil of cedar and common salt, also, that they wash the corpse with nitre and leave it to steep for seventy days, at the end of which time they remove the intestines, which the injection has corroded, and replace their loss by filling the cavity of the abdomen with nitre. This is also borne out by Wilkinson, who says:

"On exposure to air they (the mummies) become covered with efflorescence of sulphate of soda, and also readily absorb moisture from the atmosphere."

It appears, also, that after the period of preparation (thirty, forty, or seventy days, as fixed by various authors), the corpse was relieved, in the first-class ones, of all the old saline, nitrous, or resinous products, and re-filled with costly resins, aromatic spices, and bitumen; which, says Monsieur Rouyer -

"Having styptic, absorbent, and balsamic qualities, would produce a kind of tanning operation on the body, which would also, no doubt, be heightened by the washing with palm wine."

He here broaches the ingenious and highly probable theory, that the corpse, during its mummification, was placed in stoves of a certain temperature, where the heat gradually and closely united the various preservative agents before mentioned. They were then swathed in linen bandages of great length, and enclosed in beautifully painted and gilded cartonages; the faces were heavily gilded and the eyes imitated in enamel; they were then inclosed in three or four cases, also richly gilded and painted, and finally "mounted" in a sarcophagus.

Common people appear in some cases to have been merely salted and plunged in liquid pitch, others were simply salted and dried. Mummies prepared by these methods freely attract moisture — are ill preserved, and, therefore, as a matter of course, fall to pieces easily on contact with external air.

In summing up the process of embalming, as described by the authors just quoted, we find a few problems of more or less difficulty, and which none of them appear inclined to solve; and I do not

wonder at this, as the attempt, in my own case, in one or two instances, has involved days of study and references to dozens of medical and other works with but a meagre result. However, to take them *seriatim*, we can assume, I think, with some show of evidence, that the Ethiopian stone, mentioned as being used to make the first incision in the corpse, might have been a piece of obsidian or basalt, but most probably was merely an ordinary sharp flint of a dark colour.

The first chemical used in embalming is the hardest nut of all to crack, and on which I have most exercised my intellectual teeth — and that is natron. Now, what is natron? *[Footnote:* Natrium is the old Latin term for the metal or base we now call sodium. The old names for some of its salts were: Natron Carbonicum--or Bicarbonate of Soda; Natron Vitriolatum — or Sulphate of Soda; discovered or re-discovered about 1670. Nitrum =Carbonate of soda.*]* Ordinary dictionaries and authors tell us, as a matter of course — carbonate of soda. In support of this theory M. Rouyer writes:

"The natron would be used just as it was got from many of the lakes of Egypt, where it is found abundantly in the form of carbonate of soda."

Pereira, in "Materia Medica," though intimating that natron is not to be confounded with nitre, says, in speaking of carbonate of soda:

"This salt was probably known to the ancients under the term of Nitron." (Νιτρον)

Now, as (Νιτρον) is more likely, from its etymology, to be translated "nitre," we are landed into another difficulty, if by nitre we mean saltpetre, for that will, as we all know, preserve animal tissue for a certain time; however, I do not think we can translate natron as being nitre (saltpetre), for in former days many salts were included under the general term nitre; for instance, our common soda and potash, the chemical composition of which was unknown until Davy, in 1807, extracted the metals sodium and potassium from those salts. Boitard expressly states:

"Il parait que ce natrum 鵙it un alkali fixe, et pas du tout du nitre comme quelques auteurs l'ont pens黠ce qui sem-

blerait appuyer cette opinion, c'est que lea femmes egyptiennes se servaient de *natrum* pour faire leur lessive, comme on as sert aujourd'hui de la soude."

In Peru the soil may be said to be impregnated with nitre, but that is nitrate of soda, and not really saltpetre (nitrate of potassium), as many people imagine who hear it called simply nitre.

Mr. Thos. W. Baker, who has most obligingly unearthed several old works for me, says:

"Now I think of it, natron is perfectly familiar to me as apparently a mixture of broken soda crystals and a brown earth which is sold in the bazaars of India, under the name of 'sootjee moogee,' for domestic purposes; and I know, from experience, that unless it is washed off paint work directly it is passed over it with a cloth all the paint comes off bare, sometimes to the wood."

Again, he says:

"In Bayley's Dictionary, circa 1730, I find the following: 'Natron; or, a Natron, from Gr. Natron (?) ( Νατρον), a kind of black greyish salt, taken out of a lake of stagnant water in the territory of Terrana, in Egypt."

Also see "Penny Cyclopaedia," vol. xvi., p. 105, "Natron, native sesquicarbonate of soda (see 'Sodium'):"

"The Natron Lakes, which are six in number, are situated in a valley bordering upon Lower Egypt, and are remarkable for the great quantity of salt which they produce. The crystallisations are both of muriate of soda (or common salt) and of carbonate of soda. ... The "Natron" is collected once a year, and is used both in Egypt and Syria, as also in Europe, for manufacturing glass and soap, and for bleaching linen."

Turning to "Sodium" for the sesquicarbonate, which is found native in Hungary, and also near Fezzan, in Africa:

'By the natives it is called "Trona." It is found in hard striated crystalline masses, and is not altered by exposure to the air, but is readily soluble in water. This salt appears to be formed when a solution of the carbonate of soda is heated with carbonate of ammonia, and probably also when a solu-

tion of the bicarbonate is heated. Its taste is less alkaline than that of the carbonate, into which it is converted when strongly heated by losing one-third of its carbonic acid.'

That it was one of the products of soda cannot reasonably be doubted. Biborate of soda (with which I have been experimenting lately) has certainly wonderfully preservative powers, especially in conjunction with common salt, or saltpetre; but then it has not the caustic properties of natron. May not natron have been a fixed alkali, or has the native carbonate of soda more caustic and antiseptic properties than the usual carbonate of soda of commerce, which plainly cannot be intended?

We have here a most interesting subject to solve as to the component parts of the ancient natron; my suspicion is that natron, as used by the Egyptians, was a mixture of biborate of soda, caustic soda, and muriate of soda. *[Footnote:* The following report appeared in the California Alta, 24th June. 1874:

"AN INTERESTING DISCOVERY. — Several weeks ago we mentioned the departure of Mr. Arthur Robottom, Birmingham, England, on a search for borax in the southern part of California. He has now returned, bringing news of an interesting and valuable discovery. Beyond the Sierra Nevada, in the Enclosed Basin of North America, about 140 miles in a north-eastward direction from Bakersfield, there is the bed of a dry lake filled over an area of fifteen miles long by six wide with saline crystals to a depth of about six or eight feet. The appearance of the surrounding country clearly indicates that water once stood sixty feet deep here over a large area, the ancient beach being distinctly traceable. The most remarkable fact about this-saline deposit is that in its middle there is a tract, five miles long and two wide, of common salt, while on the outside there is a deposit of borate of soda, three feet thick, and under this a lower stratum composed of sulphate of soda and tincal mixed together, from one to three feet thick. These minerals are all in crystals, the sulphate of soda and tincal forming a solid mass, almost like stone in its hardness. The borate of soda is of a dirty hue, but the salt, which lies above the level of the entire deposit, in some places to a depth of seven feet, is white as snow. The report of

natural deposits thus situated will appear very improbable to scientific men, for there is nothing to account for the separation of the salt from the borates, or for the accumulation of salt above the level of other crystalline deposits. We have Mr. Robottom for authority, and the country is open for those who wish to examine for themselves. The place can easily be found. It is known as the Borax Fields in the Slate Range, and will be examined carefully by many competent men, since the tincal — a crude borate of soda — is a valuable mineral, and can be separated, at little expense, from the sulphate of soda."*]*

The next chemical agent we have to notice (which should, however, have appeared prior to natron), is palm wine, used in the first process of cleansing the intestines; this would doubtless act as an astringent, and would, of course, tend to coagulate the liquid albumen contained in the body (in a similar manner to our ordinary spirits of wine), which, if followed by a caustic alkali (such as natron may have been), to dissolve the solid albumen, fibrin and gelatine, ought certainly to have exercised a decidedly tanning influence.

Following this is oil of cedar. The present oil of cedar (*ol cedrat* of commerce) cannot be intended, as that is made from the citron, and being merely an essential oil can have little of the antiseptic or corrosive qualities imputed to the ancient oil of cedars. May it not have been a product distilled from the actual cedar tree (one of the coniferae) similar to our oil or spirit of turpentine? I have, however, been unable to discover any writings in certain support of this theory; "Encyclopaedia Britannica" merely mentions it as "a certain oily liquor extracted from the cedar;" while Boitard boldly says, "... Sans doute l'essence de terebenthine." *[Footnote:* The *Detroit Review of Medicine and Pharmacy* for July, 1876. gives a report of a case of poisoning through an overdose of oil of red cedar (*oleum juniper virginianae*) which supports my theory as to there being extracted an oil from the Lebanon (or other) cedars partaking of the nature of turpentine and totally distinct from *ol cedrat.]*

Whatever may have been the composition of — and manner of applying — the foregoing agents, it is certain that they had the effect intended, for Diodorus writes fully within bounds when men-

tioning the life-like appearance of the features in mummies, as we know by later discoveries, for there are some well-known specimens still in existence of which the eyelids, lashes, eyebrows, and hair are still in their natural state, and this after an interval of thousands of years. In some mummies, for instance, the contour of the features is plainly discernible, and surely this is scientific "preparation of specimens" not to be excelled in the present day.

The Egyptian mode of embalming was imitated occasionally by the Jews, Greeks, Romans, and other nations, and has sometimes been adopted in modern times, but never to the same extent or perfection as they attained. The only other method which is known to have been adopted as a national custom was that practised by the Guanches, the ancient inhabitants of the Canary Isles. Their mummies are particularly described by M. Bortj de St. Vincent, in his 'Essai sur les Isles Fortun饀.' Numerous and vast catacombs are filled with them in each of the thirteen islands, but the best known is one in Teneriffe, which contained upwards of a thousand bodies. The mummies are sewn up in goat or sheep skins, and five or six are commonly found together, the skin over the head of one being stitched to that over the feet of another; but those of the great are contained in cases hollowed out of a piece of savin wood. The bodies are not bandaged, and are dry, light tan-coloured, and slightly aromatic. Several of them are completely preserved with distinct, though distorted, features.

The method of embalming adopted by the Guanches consisted in removing the viscera in either of the same ways as the Egyptians practised, then filling the cavities with aromatic powders, frequently washing and anointing the surface, and, lastly, drying the body very carefully for fifteen or sixteen days in the sun or by a stove.

*[Footnote: My friend, the late Thos. Baker, wrote me, some time before his sad death by shipwreck: "In an old work which I have, 'A General Collection of Voyages,' I find the following relating to the 'Guanches' in vol. i., book ii., chap. i., page 184, 'The Voyage of Juan Rejon to the Canary Islands, AD. 1491': 'When any person died, they preserved the body in this manner: First, they carried it to a cave and stretched it on a fiat stone, where they opened it and took out the bowels; then, twice a day, they washed the porous parts of the body, viz., the arm-pits, behind the ears, the*

*groin, between the fingers, and the neck, with cold water. After washing it sufficiently they anointed those parts with sheep's butter (?), and sprinkled them with a powder made of the dust of decayed pine trees, and a sort of brushwood which the Spaniards call Brefsos, together with the powder of pumice stone. Then they let the body remain till it was perfectly dry, when the relatives of the deceased came and swaddled it in sheep or goat skins dressed. Girding all tight with long leather thongs, they put it in the cave which had been set apart by the deceased for his burying place, without any covering. There were particular persons set apart for this office of embalming, each sex performing it for those of their own. During the process they watched the bodies very carefully to prevent the ravens from devouring them, the relations of the deceased bringing them victuals and waiting on them during the time of their watching.'"]*

So complete is the desiccation of these mummies, that a whole body, which Blumenbach possessed, weighed only 7.5 lb., though the dried skeleton of a body of the same size, as usually prepared, weighs at least 9 lb.

In some situations the conditions of the soil and atmosphere, by the rapidity with which they permit the drying of the animal tissues to be effected, are alone sufficient for the preservation of the body in the form of a mummy; this is the case in some parts of Peru, especially at Arica, where considerable numbers of bodies have been found quite dry in pits dug in a saline dry soil. There is an excellent specimen of a mummy of this kind in the Museum of the College of Surgeons, which was brought from Caxamarca by General Paroissien -- like most of them, it is in a sitting posture, with the knees almost touching the chin, and the hands by the sides of the face. It is quite dry and hard; the features are distorted, but nearly perfect, and the hair has fallen off. The Peruvian mummies do not appear to have been subjected to any particular preparation, the dry and absorbent earth in which they are placed being sufficient to prevent them from putrefying. M. Humboldt found the bodies of many Spaniards and Peruvians lying on former fields of battle dried and preserved in the open air. In the deserts of Africa the preservation of the body is secured by burying it in the hot sand; and even in Europe soils are sometimes met with in which the bodies undergo a slow process of drying, and then remain almost unalterable even on exposure to the air and moisture. There is a vault at Toulouse in