more detail as to what may be done in the workshop; Montague Browne’s elaborate treatise@@1 remains a standard work, whilst William T. Hornaday@@2 has supplied a very full account of the excellent American methods which he has done so much to develop.

The first principle governing the art is that, after the specimen has been procured, in as fresh and clean a state as may be, it should have the skin stripped from the body in such a manner as not to disturb the scales if a fish or a reptile, the feathers if a bird, or the fur or hair if a mammal. To do this correctly requires a small stock of tools, as well as a great amount of patience and perseverance. The appliances comprise several sharp knives (some pointed and some obtuse), a pair of scissors, a pair of pliers, a pair of nippers or “cutting-pliers,” some tow, wadding, needles and thread, also a “ stuffing-iron,” some crooked awls, a pair of fine long flat-nosed pliers, and a camel- hair brush. The preservative compound is often the original (Bécoeur’s) “ arsenical soap,” made by cutting up and boiling 2 lb of white soap, to which 12 oz. of salt of tartar and 40z. of powdered lime (or whiting) are added when dissolved; to this mixture, when nearly cold, 2 lb of powdered arsenic and 5 oz. of camphor (the latter previously triturated in a mortar with spirits of wine) are added. The mixture is put away in small jars or pots for use. Like all arsenical preparations, this is exceedingly dangerous in the hands of unskilled persons, often causing shortness of breath, sores, brittleness of the Dails and other symptoms; and, as arsenic is really no protection against the attacks of insects, an efficient substitute has been invented by Browne, composed of 1 lb of white curd soap and 3 lb of whiting boiled together, to which is added, whilst hot, 1½ oz. of chloride of lime, and, when cold, 1 oz. of tincture of musk. This mixture is perfectly safe to use when cold (although when hot the fumes should not be inhaled, owing to the chlorine given off), and is spoken of as doing its work efficiently. Solutions of corrosive sublimate, often recom­mended, are, even if efficient, dangerous in the extreme. Powders consisting of tannin, pepper, camphor, and burnt alum are sometimes used for “ making skins,” but they dry them too rapidly for the purposes of “ mounting.” Mammals are best preserved by a mixture of 1 lb of burnt alum io ¼ lb of salt­petre; this, when intimately mixed, should be well rubbed into the skin. Fishes and reptiles, when not cast and modelled, are best preserved in rectified spirits of wine; but this, when economy is desired, can be replaced by “Müller’s solution” (bichromate of potash 2 oz., sulphate of soda 1 oz., distilled water 3 pints) or by a nearly saturated solution of chloride of zinc. The cleaning of feathers and furs is performed by rubbing them lightly with wadding soaked in benzoline, afterwards dusting on plaster of Paris, which is beaten out, when dry, with a bunch of feathers.

The preparation and mounting of bird specimens, the objects most usually selected by the amateur, are performed in the follow­ing manner. The specimen to be operated upon should have its nostrils and throat closed by plugs of cotton-wool or tow; both wing-bones should be broken close to the body, and the bird laid upon a table on its back; and, as birds—especially white-breasted ones—should seldom, if ever, be opened on the breast, an incision should be made in the skin under the wing on the side most damaged, from which the thigh protrudes when pushed up slightly ; this is cut through at its junction with the body, when the knife is gently used to separate the skin from this, until the wing-bone is seen on the open side. This is then cut through by scissors, and by careful manipulation the skin is further freed from the back and breast until the neck can be cut off. The other side now remains to be dealt with; from this the wing is cut by travelling downwards, the remaining leg is cut away, and very careful skinning over the stomach and upon the lower back brings the operator to the tail, which is cut off, leaving a small portion of the bone (the coccyx) in the skin. The body now falls off, and nothing remains in the skin but the neck and head. To skin these out properly without unduly stretching the integument, is a task trying to the patience, but it can be accomplished by gradually working the skin away from the back of the head forward, taking care to avoid

cutting the eyes or the eyelids, but by cautious management, to cut the membranous skin over those parts, so that the eyes are easily extracted from the orbits without bursting. The skin should be freed down nearly to the beak, and then the back of the head, with neck attached, should be cut off, the brains extracted, all the flesh cleared from the skull and from the bones of the wings, legs and tail, the skin painted with the preservative, and ultimately turned into its proper position. \_ When “ skins" only are to be made for the cabinet, it is sufficient to fill the head and neck with chopped tow, the body with a false one made of tow, tightly packed or loose according to the genius of the preparer, to sew up the skin of the stomach, and to place a band of paper lightly pinned around the body over the breast and wings, and allow it to remain in a warm position, free from dust, for several days or weeks, according to the size of the specimen. It should then be labelled with name, sex, locality and date, and put away with insect powder around it.

When, however, the specimen is to be "mounted,” the opera­tions should be carried up to the point of returning the skin, and then a false body of tightly wrapped tow is made upon a wire pointed at its upper end. This is inserted through the incision under the wing, the pointed end going up the neck and through the skull to the outside. When the imitation body rests within the skin, pointed wires are thrust through the soles of the feet, up the skin of the back of the legs, and are finally clenched in the body. Wires are also thrust into the butts of the wings, following the skin of the under surface, and also clenched through into the body. A stand or perch is provided, and the bird, being fixed upon this, is, after the eyes have been inserted, arranged in the most natural attitude which the skill of the taxidermist can give it.

Mammals are cut along the stomach from nearly the middle to the breast, and are skinned by working out the hind legs first, cutting them off under the skin at the junction of the femur with the tibia, and carefully stripping the skin off the lower back and front until the tail is reached, the flesh and bones of which are pulled out of the skin, leaving the operator free to follow on up the back and chest until the fore legs are reached, which are cut off in like manner. The neck and head are skinned out down to the inner edges of the lips and nose, great care being exercised not to cut the outer portions of the ears, the eyelids, the nose or the lips. The flesh being cleared off, and the brain and eyes extracted, the skull should adhere to the skin by the inner edges of the lips. All the flesh should be trimmed from the bones of the legs. The head, being shaped, where the flesh was removed, by tow and clay, is returned into the skin. A long wire of sufficient strength is tightly bound with tow, making a long, narrow body, through which wires are thrust by the skin of the soles of the feet. The leg wires and bones being wrapped with tow and clay into shape, the points of the wires are pushed through the tow body and clenched. They and the body are then bent into the desired position, and modelled up by the addition of more tow and clay, until the contours of the natural body are imitated, when the stomach is sewn up. A board is provided upon which to fix the specimen, artificial eyes are inserted, the lips, nose and eyelids fixed by means of pins or “ needle-points,” and the specimen is then placed in a warm situation to dry.

Reptiles, when small, have their skin removed by cutting away the attachment of the skull to the cervical vertebrae, and by turn­ing the decapitated trunk out at the mouth by delicate manipula­tion. When large, they are cut along their median line, and treated in the same manner as mammals.

Fishes, after being covered on their best side with paper or muslin to protect the scales, are cut along the other side from the tail to the gills, and are skinned out by removing “ cutlets,” as large as is possible without cracking the skin, which, indeed, should be kept damp during work. After being cured with a preservative, they are filled with sawdust or dry plaster of Paris, sewn up, turned over on a board, the fins pinned out, and the mouth adjusted, and, when perfectly dry, the plaster may be shaken out.

The new school of taxidermists, with new methods, whose aim is to combine knowledge of anatomy and modelling with taxidermic technique, has now come to the front, all processes of “ stuffing ” have been discarded in favour of modelling. Within the limits of an article like the present it is impossible to do more than glance at the intricate processes involved in this. In the case of mammals, after the skin has been com­pletely removed, even to the toes, a copy is made of the body, posed as in life, and from this an accurate representation of form, including delineation of muscles, &c., is built up in light materials, and known as the “ manikin ”; the model is then covered with skin, which is damped, and moulded to follow every depression and prominence, the manikin, before having the skin put on it, frequently being covered completely with a thin layer of clay; the study is then suffered to dry; and, models having been made, in the case of large animals, of the

*@@@1 Artistic and Scientific Taxidermy and Modelling* (London, 1896).

*@@@2 Taxidermy and Zoological Collecting* (London, seventh edition, 1901).