

IX. PREPARING SKINS OF AQUATIC ANIMALS FOR LEATHER.

CAYMAN OR CROCODILE SKIN.

(*Crocodilus porosus* Schneider and *C. palustris* Lesson.)

For commercial purposes, skins of the medium-sized cayman, of about 3 meters (9 feet) length, are the most desirable as they are easier to tan, and make the best leather. The skin should be cut along the middle line of the belly from the chin to the tip of the tail and carefully removed

from the animal soon after its death. Fine salt in sufficient quantity should then be rubbed thoroughly into the raw side of the skin. It is then rolled compactly and placed in a dry place to cure; occasional examination should be made to see if it is curing properly. When thoroughly cured the skin is ready for tanning.

To tan, it is first soaked in a tub of clear fresh water from two to six days—depending on the size of the skin,—a 3-meter skin requires about five days. It is then placed in a rather weak solution of lime and water which should be increased in strength daily for about ten days. The wet skin is now placed on a smooth beam, raw side out, and all the fat or flesh rubbed or shaved off. It is then placed in a thick mixture of bran and water and allowed to soak for one day—this is to neutralize the alkali of the lime. During all of the above processes through the solutions it is better if the skin be agitated occasionally so that all parts receive sufficient treatment. The hide is then washed and immersed in a tank of tanning extract. Any of the native tans may be used, or oak bark, gambia, or sumac liquid of 4 per cent strength, and stronger liquid is added each day until the strength has reached 20 per cent at the end of eighteen days. The length of time will vary according to the size of the skin, strength of the solution, or the color desired. The hide is then hung up to dry and harden. It is then shaved and cleaned again so as to leave it of the desired thickness. If black, red, brown, or green shades of color are desired the skin is put into a bath of wood and aniline dyes, for about three-quarters of an hour. It is then stretched out and nailed to a board or wide frame for drying. When dry it is rubbed briskly over an iron or wooden beam to make it flexible.<sup>16</sup> The skin is then ready for use. The price paid for prepared skins is from 2 to 4 pesos per 20 lineal centimeters.

So far as I have been able to learn no serious attempt has been made to prepare the Philippine crocodile skin for leather. It is an experiment well worth trying, as the cayman is notoriously abundant in many streams of the Philippines.

#### WATER-SNAKE SKINS.

(*Lapemis hardwickii* Gray, *Chersydrus granulatus* Schneider, and other species.)

There are great numbers of water snakes in the Philippines. I have seen more than one hundred brought in with one haul of an ordinary fish sein on the Malate beach. It is quite probable that a good industry could be built up in tanning the skins of these snakes for leather. Many of them are finely marked and would make attractive belts, card cases, and ornamental objects. Considerable quantities of snake-skin leather are used in France. The following is the method of preparation:

The skins are removed from the animals and soaked for ten days in a strong solution of sulphate of zinc. They are then fleshed, scraped, washed by hand, and placed in a bath containing 100 parts water, 10 parts borax, 100 parts boracic acid, 25 parts tartaric acid, and 25 parts saturated solution of precipitated alumina. They remain in this bath one day and are then transferred to bath No. 2 containing 1000 parts water, 25 parts phosphate of zinc, 25 parts benzoate of aluminium, 50 parts glycerine, 20 parts alcohol. The skins are

<sup>16</sup> Report U. S. Fish Comm. (1902), 350.

left one day in this solution, then they are placed in the first bath again for one day, then back into the second for another day, this alternating of baths being continued for five or six days, by which time the tanning is complete. The skins are then dried, lightly staked, and finished off.

#### PREPARING SHARK SKIN.

Shark skin is used for a great many purposes, especially for sword grips, knife and sword sheaths, for polishing wood and ivory, and for covering small ornamental objects, such as jewel boxes or card cases: A manufacturer in Paris has made a big reputation by tanning the skin of the Malabar shark into morocco leather.

Some very beautifully marked sharks are found in the Philippines such as *Chiloscyllium indicum* (Gm.), *Stegostoma tigrinum* Linn., *Seyllium capense* Mull. & Hen., and *S. marmoratum* Gray & Hard. Their skins could be made into excellent leather.

To tan shark skins, the skins are (if hard) first soaked in water for four or five days; they then are placed in a solution of lime and water, as in the case of the crocodile skins; they remain in this solution from two to six days, and are then washed free of lime, and soaked in bran water for a day or so; they are then fleshed, or shaved, and immersed in an alum solution composed of 0.5 kilogram of alum and 0.1 kilogram of salt to 4 liters of water; they remain in this solution two or three days, with occasional stirrings. On removal they are dried and are ready for manufacturing.

To prepare shark's skin for the use of cabinet-makers it is merely cleaned and not tanned, the hard dry skin is soaked in lukewarm water for three or four days, shaved on the flesh side, and then dried. This skin will outwear many sheets of sand-paper of equal size.

We are indebted to Chas. H. Stevenson's valuable paper regarding methods of tanning, for much of the above information.<sup>17</sup>