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TAPIOCA is a farinaceous food substance prepared from cassava starch, the product of the large tuberous roots of the cassava or manioc plant, *Manihot utilissima* (*Jatropha manihot*)*,* native of Brazil (see Cassava, vol. v. p. 182, and comp. Arrowroot, vol. ii. p. 631, fig. 6). Cassava starch, being separated from the fibrous and nitro­genous constituents of the roots, is in a moist condition spread upon iron plates, and with constant stirring exposed to such heat as causes a partial rupture of the starch granules, which agglomerate into irregular pellets, becoming hard and translucent when cooled. In this partly torrefied condition the starch forms the tapioca of commerce, a light, pleasant, and digestible food, much used in puddings and as a thickener for soups. The French prepare an artificial tapioca from potato starch, mixed with various vegetable substances, for use in soups, &c., which is found in the market under such names as tapioca Crecy, tapioca Julienne, &c., according to the dried vegetables with which the preparations are made.

TAPIR. The general characters of the animals of the perissodactyle or odd-toed section of the hoofed mammals are described under Mammalia, vol. xv. p. 427. This once numerous group is at present represented by only three rather isolated families, the Horses, Rhinoceroses, and Tapirs. The last of these have retained much more of the original characters of the primitive Ungulates of the Eocene period than the others, and have indeed remained practically almost unchanged since the Miocene period, while almost all other mammalian forms which existed then have either become extinct or undergone extensive modification. The tapirs constitute the single genus, *Tapirus,* of the family *Tapiridæ.*

The dentition is *i 3/3, c 1/1, p 4/3, m* 3/3 ; total 42. Of the upper incisors, the first and second are nearly equal, with short, broad crowns, the third is large and conical, considerably larger than the true canine, which is separated from it by an interval. Lower incisors diminishing in size from the first to the third ; the canine, which is in contact with the third incisor, large and conical, working against (and behind) the canine-like third upper incisor. In both jaws there is a long interspace between the canines and the com­mencement of the teeth of the molar series, which are all in contact. First upper premolar with a triangular crown, narrow in front owing to the absence of the anterior inner cusp. The other upper premolars and molars all formed on the same plan and of nearly the same size, w’ith four roots and quadrate crowns, rather wider transversely than from before backwards, each having four cusps, connected by a pair of transverse ridges, anterior and posterior. The first lower premolar compressed in front ; the others composed of a simple pair of transverse crests, with a small anterior and posterior cingular ridge.

Skull elevated and compressed. Orbit and temporal fossa widely continuous, there being no true post-orbital process from the frontal bone. Anterior narial apertures very large, and extending high on the face between the orbits; nasal bones short, elevated, triangular, and pointed in front. Vertebræ: C 7, D 18, L 5, S 6, C about 12. Limbs short and stout. Fore feet with four toes, having distinct hoofs: the first is absent, the third the longest, the second and fourth nearly equal, the fifth the shortest and scarcely reaching the ground in the ordinary standing position. Hind feet with the typical perissodactyle arrangement of three toes,—the middle one being the largest, the two others nearly equal. Nose and upper lip elongated into a flexible, mobile snout or short proboscis, near the end of which the nostrils are situated. Eyes rather small. Ears of moderate size, ovate, erect. Tail very short. Skin thick and but scantily covered with hair.

The existing species of tapir may be grouped into two sections, the distinctive characters of which are only recognizable in the skeleton. (A) With a great anterior prolongation of the ossification of the nasal septum (mesethmoid), extending in the adult far beyond the nasal bones, and supported and embraced at the base by ascend­ing plates from the maxillæ (genus *Elasmognathus,* Gill). Two species, both from Central America, *Tapirus bairdi* and *T. dowi.* The former is found in Mexico, Honduras, Nicaragua, Costa Rica, and Panama ; the latter in

Guatemala, Nicaragua, and Costa Rica. (B) With ossifica­tion of the septum not extending farther forward than the nasal bones (*Tapirus* proper). Three species, *T. indicus,* the largest of the genus, from the Malay Peninsula (as far north as Tavoy and Mergui), Sumatra, and Borneo, dis­tinguished by its peculiar coloration, the head, neck, fore and hind limbs being glossy black, and the intermediate part of the body white; *T. americanus (T. terrestris,* Linn.), the common tapir of the forests and lowlands of Brazil and Paraguay ; and *T. roulini,* the Pinchaque tapir of the high regions of the Andes. All the American species are of a nearly uniform dark brown or blackish colour when adult ; but it is a curious circumstance that when young (and in this the Malay species conforms with the others) they are conspicuously marked with spots and longitudinal stripes of white or fawn colour on a darker ground.

The habits of all the kinds of tapirs appear to be very similar. They are solitary, nocturnal, shy, and inoffensive, chiefly frequenting the depths of shady forests and the neighbourhood of water, to which they frequently resort for the purpose of bathing, and in which they often take refuge when pursued. They feed on various vegetable substances, as shoots of trees and bushes, buds, and leaves. They are hunted by the natives of the lands in which they live for the sake of their hides and flesh.

The singular fact of the existence of so closely allied animals as the Malayan and the American tapirs in such distant regions of the earth and in no intervening places is accounted for by what is known of the geological history of the race, for, if we may judge from the somewhat scanty remains which have been preserved to our times, consisting chiefly of teeth, the tapirs must once have had a very wide distribution. There is no proof of their having lived in the Eocene epoch, but in deposits of Miocene and Pliocene date remains undistinguishable generically and perhaps specifically from the modern tapirs (though named *T. priscus, T. arvernensis,* &c.) have been found in France, Germany, and in the red crag of Suffolk. Tapirs appear,