

bones are few and expanded; the nasals, pre-frontals, and lacrymals are represented by a single bone, and there are no superorbitals. There is no *second* temporal bone, as in lizards, but an additional cheek-bone, the *quadrato-jugal*, unites the jugal to the pier of the lower jaw, a very exceptional thing in lizards (*e.g.*, *Hatteria*.)

The large investing bones have to a great extent aborted the proper internal skull; this is especially the case between the capsules of the ears and the labyrinths of the nose.

In the logger-head and green turtles the cranial compartment has a "shed" or "lean-to" on each side, formed by the parietals, post-orbitals, and squamosals. The pterygoids form the greater part of the bony floor of the skull, between which and the descending wall there is a little bony "prop" corresponding to the *columella (epipterygoid)* of the lizard.

The mandible has no *splénial* element, as in bony fishes and frogs. There are two arches developed behind the mandible—the hyoid, or tongue arch, and a second, corresponding to the first gill arch in fishes and Amphibia. The pier of the arch of the lower jaw (*quadrate*) is hollowed into a drum, over which is stretched its "opercular fold," as the parchment, in which there is an annular cartilage. The pier of the tongue-arch is a long slender rod, the *columella*, the proximal part of which answers to the stapes, and the rest to the incus; it stretches between the *fenestra ovalis* and the drum membrane.

This peculiar hollowing out of the quadrate is a promise of the air-cells seen in many of the bones of birds.

The development of the embryo of the Chelonia takes place in essentially the same manner as in birds; yet, in the young of the green turtle, half an inch long, the rudiments of the carapace can be seen.

The parental form of all the modern Chelonia was probably intermediate between the extinct *Rhynchosauria* and the *Plesiosauria*, and the existence in the Cape toad (*Dactylethra*) of characters that correspond very closely with those of the Chelonia, suggests a relationship between certain ancient forms of the Batrachia and the generalised types from which the Chelonia have sprung.

(To be continued.)

GEOGRAPHICAL NOTES

It would appear as if the War Office authorities expected the special service officers who are on the point of starting for Zululand to find opportunities for doing useful geographical work in that country, as we understand that the Intelligence Department are supplying them with the most recent edition of "Hints to Travellers," published under the authority of the Council of the Royal Geographical Society, and edited by Mr. Francis Galton, F.R.S.

THE news of the death of the Marquis Antinori, the leader of the Italian Expedition to Central Africa, is, we are glad to say, contradicted.

THE Congress of Commercial Geography, to be held at Brussels in September, will be presided over, not by M. Bamps, but by Lieut.-General Liagre, president of the Belgian Geographical Society and perpetual secretary of the Belgian Academy of Sciences. M. du Fief will act as secretary.

NEWS from Leipzig states that the president of the Meteorological Office of that city, Baron A. von Danckelmann has been invited by M. Sibiriakoff to take part in the expedition to the Siberian Arctic Sea, and that he has accepted the invitation, the necessary permission having been readily granted to him by the Saxon Government. The expedition was to sail on May 14.

Les Missions Catholiques publishes an interesting communication from Père Gourdin, a missionary in the Chinese province of Szechuen, in which he gives an

account of the little-known tract of country in the south of the province, called Kienchang.

THE last report of Her Majesty's Consul at Newchwang contains much information in regard to Manchuria which is of interest from the standpoint of commercial geography. There are reasons for believing, in his opinion, that in spite of the watershed between the valleys of the Liao and the Sungari, Newchwang will successfully compete with Nicholayesk for the most valuable part of the trade with the latter valley, and those of the two great affluents of the Sungari, the Nonni and the Hurka. A great point in its favour is that the Liao River is remarkably easy of access, while the navigation of the Amur at its entrance is extremely intricate, and is closed by ice for seven months in the year. Colonisation, we are told, is proceeding in the valley of the Yalu-Kiang, the boundary between China and Corea. With regard to the production of opium in regions at a distance from Newchwang, Mr. Consul Adkins says that it is growing in most parts of the province of Fêngtien (South Manchuria), in many parts of the Kirin province, and in a daily increasing area in the southern portion of Eastern Mongolia, notably in the tract of country which lies on the right bank of the Sungari in the angle formed by the reaches of that river above and below its junction with the Nonni, east and south-east of Petuna.

A FURTHER instalment of the *Transactions* of the Asiatic Society of Japan, which has just come to hand, contains some interesting notes of a visit paid last year to the little-known island of Hachijō by Mr. F. V. Dickens and Mr. Ernest Satow, the Japanese Secretary of H.M.'s Legation at Yedo. The island in question, it may be useful to note, is erroneously called Fatsizio on our Admiralty chart; it is the last but one of the chain which extends south of the promontory of Iazu in almost a straight line.

IN a brief account of the work of the China Inland Mission in Burmah we find some notes of interest respecting a visit to the Kah-chen hills near the Chinese frontier. The village visited is situated among the mountains at an elevation of 4,000 feet above the Burmese town of Tsee-kaw. The Kah-chen houses are described as being built of bamboo, and more substantially than those of the Burmese. The roof of each is about 100 or 150 feet in length; at the entrance for some 15 feet the sides are open or merely formed of open bamboo work. The poles which support the roof of this part of the building are ornamented with the heads and horns of buffaloes sacrificed to the *nats* or spirits. On either side of a long passage are small rooms, the first of which is the guest chamber; the kitchen and general sitting-room is at the end of the passage, whence a door, always open, leads into a small raised veranda and which is entirely appropriated to the use of the *nats*, of whom the people are in great dread. The dress of the women is superior to that of their Burmese sisters, than whom they are said to be more modest. All who can afford it, wear a large silver hoop round the neck, and as many strings of red, green, blue, and white beads as they can muster. Their ear ornaments are peculiar; large flaps of ornamented cotton hang from the back of the ear, and tassels or silver tubes are passed through the lobes. All wear large coils of rattan round their bodies, and the younger ones wear bells and cowrie shells. There is, however, one objection to both men and women, viz., their great want of cleanliness.

NOTES

THE University of Edinburgh has sustained a great loss in the unexpected death of its veteran and genial professor of mathematics. Only three weeks ago, in giving the annual address at the graduation ceremonial, he in touching terms