

PALEONTOLOGY. — *The iguanodonts from the Saint-Dizier region (Haute-Marne)*. Note (*) by Mssrs. **Albert F. de Lapparent** and **Vladimir Stchepinsky**, presented by Mr. Camille Arambourg.*

Some interesting bones found in the region around Saint-Dizier and from several stratigraphic levels, marine or continental, from Hauterivian, Barremian, and Aptian stages are attributed to two species of iguanodonts, one very large and another of medium size. Most of the elements, cited previously by Cornuel but not described, are preserved in the Saint-Dizier Museum.

The Saint-Dizier Museum contains rich paleontological documents, of which the Cretaceous section is above all constituted by the J. Cornuel collection. Diverse vertebrate bones, very incompletely studied, held our attention there, in particular some iguanodonts from several levels of the Cretaceous and diverse localities, all situated in the regions around Saint-Dizier. We will add there the indication of several elements that are not in this museum.

GEOGRAPHIC LOCALIZATION. — From south to north, seven localities must be cited as having furnished iguanodont remains.

1. Joinville (Haute-Marne), Gatère (or Gâtère) farm (fide Cornuel 1850).
2. Wassy (Haute-Marne), ancient quarry to the north, very close to Attancourt, entirely disappeared.
3. Wassy, La Grange au Ru (or Rupt), near Pont Varin: ancient mine.
4. Environs of Saint-Dizier (Haute-Marne) oolitic iron: unspecified place.
5. Cousances (Meuse): tiliary north of the village.
6. Baudonvilliers (Meuse): railroad tunnel north of the village.
7. Ville-sur-Saulx (Meuse): unspecified place.

STRATIGRAPHIC POSITION. — The Lower Cretaceous of the Saint-Dizier region is known in extreme detail, according to the studies of Cornuel (1) and the thesis of one of us (2). The very littoral marine formations alternate with the continental formations over a weak thickness. Some iguanodont bones were found in varied facies, marine and continental. The succession of beds shows, from top to bottom:

Lower Aptian. — Transgressive marine facies: — sandy clay: 3. La Grange au Ru.

Upper Barremian. — Marine facies: — red bed of Wassy;

Continental facies: — oolitic iron: 4. Environs of Saint-Dizier.

— marbled rose clay.

— clayey sands: 5. Cousances; 7. Ville-sur-Saulx.

Lower Barremian. — Coastal marine facies: — oyster-bearing clay: 6. Baudonvilliers.

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Hauterivian. — transgressive marine facies: — limestone with spatangids: 2. Wassy, ancient quarry near Attancourt; — blue calcareous marl: 1. Joinville, la Gatère.

PALEONTOLOGICAL DESCRIPTION. — The diverse bony elements examined lead us to distinguish three forms of iguanodonts, which we will name according to their truly different size: the large *Iguanodon*, the medium-sized *Iguanodon*, and the small *Iguanodon*.

The *large Iguanodon* is represented only by some bones, from two localities.

A humerus from the Barremian of Ville-sur-Saulx. The exact level and precise place are not known. This isolated element was found in the Natural History Museum of Paris.

A large ulna that measures 60 cm long. The proximal part is characteristic, with a very salient olecranon, a very marked keel, and a deep gouge to receive the ulna.

A fragment of long bone, probably the tibia, with a diameter of 6 x 7.5 cm. These two bones come from the Aptian of La Grange au Ru and are in the Saint-Dizier Museum.

The *medium-sized Iguanodon* is the most complete animal. It is an entire lot of elements labeled and cited by Cornuel (3), from a yellowish Hauterivian limestone north of Wassy. The limestone is marine: oysters are sometimes stuck on the bones (Cornuel). These were found grouped in the upper part of a stratum and already in Cornuel's time the inventory of places did not leave hope of discovering the rest of the skeleton. Also in this quarry there were three conical reptilian teeth, which diverted Cornuel. Believing that the teeth and bones belonged to the same animal, he proposed making a new reptile which he named *Heterosaurus neocomiensis*, but he never described it.

Indeed, there are elements from different animals mixed in a very littoral marine locality: three teeth, three vertebrae, and various bones from a plesiosaur; some bones and a jaw from an ichthyosaur (4); and the numerous remains of a medium-sized *Iguanodon*. Of this last, we have reassembled the following elements, with the help of Mr. J. Richir:

Vertebral column. — 23 vertebrae are distributed thus: six cervicals (several others more that Cornuel noted have escaped), one dorsal, two joined sacral vertebrae with strong processes, three anterior caudals, and eleven middle caudals. Three caudal vertebral neural arches and fragments of eight ribs should be added.

Forelimb. — A 27 cm radius (another radius was recovered in the same place, but not found in the Cornuel collection).

Pelvis. — Portions of the left ischium, right ischium, and left pubis; a fragment of postpubis (?).

Right hind limb. — Femur, tibia, and fibula; phalanges 1, 2, and 3; two ungual phalanges.

Left hind limb. — Femur (70 cm) and tibia (67 cm) (fibula, fide Cornuel, but not found); metapodial IV, including a good 25 cm metatarsal, phalanges 1 and 2, and the complete ungual phalanx.

The interest of these elements is to have belonged manifestly to a single individual. It is a typical *Iguanodon*, of moderate size like *Iguanodon mantelli*; the carcass of this terrestrial animal was able to be buried and deposited in an estuary or the edge of a beach.

We also note other bones: two fragments of long bone from the oolitic ore of the Saint-Dizier environs; a portion of femur recovered at la Gatère southwest of Joinville (fide Cornuel 1850: element currently lost).

The *small Iguanodon*: Several *Iguanodon* bones drew our attention at the Saint-Dizier Museum by their exceptionally reduced size. From the Cousancelles tilery come: a humerus that must be at least 25 cm long, a small rib, and a very small ungual phalanx; from the Baudonvilliers tunnel, the proximal portion of a small rib.

Can the three forms of iguanodonts from the Saint-Dizier region be distributed among the three species known in Europe? It seems that the large form can be referred to the giant *Iguanodon bernissartensis* Boulenger group. The medium-sized *Iguanodon* has all the characters of *Iguanodon mantelli* Meyer, as well known at Bernissart as in England. Regarding the small form, we can hesitate between the small *I. atherfieldensis* Hooley (5) species or a young individual of *I. mantelli*; the very small size and the allure of the bones from the Cousancelles tilery lead us to think rather of an immature being, a very young *Iguanodon*.

CONCLUSION. — The interest of the Saint-Dizier region is underlined, where diverse iguanodonts lived at the start of Cretaceous times. Whereas the Lower Cretaceous of Belgium and England has furnished iguanodonts in abundance, that of France seemed not to contain them: there seemed to be nothing in the Boulonnais, Pays de Bray, or Argonne. But here the elements from the Saint-Dizier Museum, forgotten for more than a hundred years, show us that these terrestrial reptiles haunted the Cretaceous ring of the humid Champagne, near the shores where the Hauterivian and Aptian transgressions broke.

(*) Meeting of 18 March 1968.

(1) J. CORNUEL, *Mém. Soc. géol. France*, 4, 2nd part, 1841.

(2) V. STCHEPINSKY, *Histoire géologique de la Haute-Marne et des régions voisines, Thesis*, Paris, 1962.

(3) J. CORNUEL, *Bull. Soc. géol. France* (2), 7, 1850, p. 702-704.

(4) J. CORNUEL, *Bull. Soc. géol. France* (3), 5, 1877, p. 604-626.

(5) R. W. HOOLEY, *Quart. Journ.*, 81, 1925, p. 1-60.

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