

The easternmost strata containing *Halitherium* in the marine Stampien of Bordelais

by Gaston Astre*

Concerning the inventory of the layers of mammalian fossils from the Aquitanian Basin, the three which we shall make known here leave the usual enumeration and indicate the approach of a shoreline.

Esclottes-Bellevue.—Esclottes is a community in the Duras district of the Lot-et-Garonne department, situated 5 km NW of the small city of Duras: at 2 km NNE of Esclottes is found the place called Bellevue at an altitude of 80 to 100 m. on a slope whose summit is about 110 m. high and dominates the left bank of the Dousset stream, flowing from the north of Dropt. Classical geological background: 1) at the bottom of the valleys and the sides of the slopes, the incompetent Fronsadais from the lower Sannoisian; 2) above it, the Castillon limestone (or its equivalent marl), of the lower Stampien, which introduces into this series a marine character and presents at the base, particularly noticeable in this place, a sandy marl bed of ostracods; 4) on the most elevated ledges, soft rock of the Agenais from the middle and upper Stampien formation. One sees very clearly with this intercalation of the lower Stampien a marine facies, the Bordelais; in the other lacustrine and continental occurrences, the Agenais facies. Detailed geologic map of France at 1/80,000, sheet number 192, La Reole 1910 (NL quarter). In May 1954 some bony remains were brought to light at Bellevue in the limestone layer at Asteries by the cutting back of the talus bordering the road. Dr. Louis Moisan of Duras separated and collected them. I am indebted to his kindness as well as to the

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helpful enthusiasm of Mr. François Bissey, pilot of the Suez Canal Company at Pam. On the surface of this talus 1.5 to 2 m high following the dip, one notices the lower marine Stampien represented by a marl facies in which are found a layer of oysters (*Ostrea cyathula* Lmk. and *O. longirostris* Lmk.), typical in this layer. In the upper part of the facies lie two pieces of vertebrae and a rather long bone in fragmentary condition which upon examination seems to be a rib. This rib no longer has its articulating head. Such as it is the rest is 33 cm long to the point, which is preserved. In its proximal part are noted the subplanar facets characteristic to bones of this order; then toward the middle the becomes oval (diameter at 18 cm from the point, 4.7 and 3.5 cm), then in a more flattened oval (diameters at 10 cm from the point, 4.6 and 2 cm), and finally in a very flattened oval, ending in a lens at the point. The longitudinal profile is widely and regularly arced. By its thickness and especially its dense, massive heaviness the rib carries the immediate mark of the form from which it came, that of the sirenian *Halitherium*, a genus abundant in the Oligocene, and, assuredly, *H. schinzi* Kaup, the species common in the Stampien seas of the Bordelais, where the limestone at Asteries are noted: height, form, and degree of massiveness correspond. In the same stratigraphic level several other species, described in Europe but not in that region, show some differences even on the ribs, among which we should find heavier or, better yet, thicker ones. The discovery merits by its geographic position. Very frequently this sirenian has been, and still is, found in the Gironde region, on the western half of the territory of the La Reole sheet. On the eastern half of this map these latter strata become detached toward the east: La Reole, then, farther along, Saint-Ferme (canton of Pellegrue), Monsegur, Saint-Sulpice-de-Guilleragues, Cours, Sainte-Vivien-de-Monsegur (canton of Monsegur), all in Gironde. If we detach from this list the easternmost of them to mark the limit of the actual known extension of this species toward the shore of the Stampien sea in the limestone at Asteries (whose extreme gulf trended to the east on

the Dordogne–Dropt axis), we may establish the following line: Saint-Ferme (north of Dropt), Cours, and Sainte-Vivien-de-Monsegur (south of Dropt). Then one notes that the Esclottes layer (Bellevue) is found a little farther ahead, 9 km farther, ENE of Saint-Ferme on the hills north of Dropt. Then it is the easternmost of those mentioned above and, to my knowledge, the first discovered in the Lot-et-Garonne department. The sirenians, unusual marine herbivores, lived willingly on the coast and went up into the estuaries again: except for the bones tossed about on the shore by the waves, it is normal to find their remains just at the extreme edge of the realm of the sea.

Taillecavat.—I was in correspondence with Dr. Moisan concerning the preceding determinations and the accompanying remarks. This eager observer then directed his attention to the recovery of fossils and in July 1954 happened to discover other remains of this *Halitherium* at Taillecavat. Taillecavat belongs to the canton of Monsegur in Gironde. Its height and southern extension are on the calcareous level of Asteries: section identical to that at Esclottes (Bellevue). This locality is aligned on the same meridian as Esclottes, but south of Dropt. The exposure is 2.5 km east of Cours: then here also are the easternmost of those really known in the hills south of the river.

Ligueux.—The persistence thus aroused in Dr. Moisan caused him to battle his own record in this search of outcrops more and more to the east, and nearer the extreme limit of the Stampien sea. He collected, with selachian teeth, some remains of *Halitherium* in the oyster marls in the community of Ligueux, which is the last of the eastern edge of the Gironde department (canton of Sainte-Foy-la-Grande) . The middle valley of the Seignal stream runs through it to the north: on the hills which enclose it on the west, south and east as a semicircular elevation, the marine Stampien is level here in the neighborhood of 100. Here we are more to the north than with the two preceding

exposures: we are in the Dordogne Basin. Situated 13 or 14 km NNE of Duras, this locality is 8.8 km east of the Esclottes (Bellevue) meridian and 9.6 km east of that of Taillecavat. In other words its position is especially advanced toward the east: it is lodged, in fact, in the NE angle of the La Reole sheet and, moreover, the marine Stampien of the Bordelais does continue here, under the marl facies of oysters, only some kilometers farther in the eastern edges of the territory of the Villereal sheet.