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On the type locality of *Globorotalia fohsi* Cushman and Ellisor

ABSTRACT

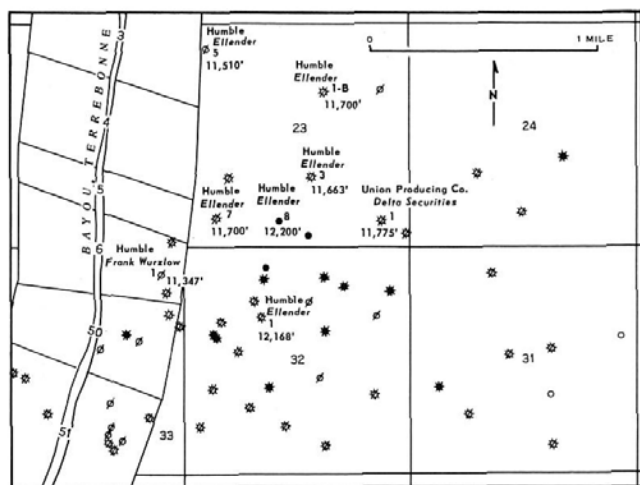
The type locality of *Globorotalia fohsi* is a core sample from a depth of 9,612 feet in H. J. Ellender No. 1 well, as stated by the authors of the species, Cushman and Ellisor. Allegations to the contrary are refuted.

INTRODUCTION

Additional data on the type locality of *Globorotalia fohsi* Cushman and Ellisor, originally reported to be a core from a depth of 9,612 feet in the Humble Oil and Refining Company H. J. Ellender No. 1 well, Terrebonne Parish, Louisiana, seem to be desirable in view of recent arguments put forth by Butler (1962) and Butler *et al.* (1965) that *G. fohsi*, *G. mayeri* Cushman and Ellisor, and *Bigenerina humblei* Cushman and Ellisor occur in beds too deep to have been encountered in the Ellender No. 1 well or any other well in the Lirette Field. The well was drilled to a total depth of 12,168 feet in 1937 and was then regarded as the deepest producing well in the world. This fleeting distinction is, of course, long past. The well still has its micropaleontologic significance, for it is not only the type locality of *G. fohsi*, but also of five other planktonic foraminifers, viz., *G. mayeri*, *G. quadraria* Cushman and Ellisor (= *Globoquadrina dehiscens* (Chapman, Parr and Collins)), *G. canariensis minima* Akers, *Globigerinita incrusta* Akers, and *Globigerina druryi* Akers, as well as of the benthonic foraminifers *Uvigerina lirettensis* Cushman and Ellisor, *Cibicides carstensi* Cushman and Ellisor, *Bolivina costata dissimilis* Cushman and Ellisor, and *Bigenerina nodosaria directa* Cushman and Ellisor.

DISCUSSION

First, the location of the Ellender No. 1 well needs to be clarified. Butler (1962, p. 271) and Butler *et al.* (1965, p. 1) correctly pointed out that the well is located in Section 32 (not 23 nor 43), T. 19 S., R. 19 E., Lirette Field, Terrebonne Parish, Louisiana. They stated further, however, that "the location of the well was reported by Cushman and Ellisor as in Section 43, which was quoted by Akers (1955)." The well is located only as in "Terrebonne Parish, Louisiana" by Cushman and Ellisor (1939). Ellisor (1940, p. 443, text-figure 2) gave the well location as Section 23 (not 43), T. 19 S., R. 19 E., and Akers (1955, pp. 654, 655, 659) gave the same location but without citing the source. These conflicting locations seem understandable when the location map for the area constructed by Humble Oil and Refining Company (text-figure 1) is examined. Another well, the Humble Oil and Refining Company No. 1B H. J. Ellender, is in Section 23 to the north of the No. 1 H. J. Ellender in Section 32. Inasmuch as the Ellender No. 1 extends below 12,000 feet, whereas the Ellender No. 1B reaches a total depth of only 11,700 feet (Ellisor, *op. cit.*, p. 460, text-figure 10), it appears evident that Ellisor was concerned with the Ellender No. 1 but inadvertently erred in the location.



TEXT-FIGURE 1

Sketch map of part of Lirette Field, Terrebonne Parish, Louisiana, showing the location of Humble Oil and Refining Company's well No. 1 H. J. Ellender and other deep wells.

Butler *et al.* (1965, p. 1) stated that "the core record of well Ellender No. 1 does not show a core taken at or around 9,612 feet." In 1937, however, cores, particularly shales, were not necessarily recorded except in paleontological reports. Cushman and Ellisor (1939) referred specifically to a core sample from a depth of 9,612 feet and indicated that the holotypes of the species described as *Globorotalia fohsi* and *Globorotalia mayeri* came from this core. Ellisor (*op. cit.*, p. 460, text-figure 10) also indicated 9,612 feet as the depth from which were obtained *Uvigerina lirettensis*, *Bigenerina humblei* and *Globorotalia fohsi*.

In order to investigate further, a copy of the original paleontological reports made on samples from the No. 1 H. J. Ellender as the well was drilled was obtained through the courtesy of the Humble Oil and Refining Company. The individual reports are dated from October 19, 1936, to March 19, 1937. The report dated March 19, 1937, describes a core from between the depths of 9,612 and 9,622 feet as greenish gray shale with a rather rich foraminiferal fauna and records continuous coring from 9,524 to 9,636 feet with intervals specifically labeled 9,602–9,612 feet and 9,612–9,622 feet.

The Shell Oil Company in Houston received a complete set of samples from the No. 1 Ellender from the Humble Oil and Refining Company shortly after the well was drilled. These samples were washed and examined with the foraminifers being picked and assembled on slides for each sample interval. Coring was almost continuous, and among the cores received was one labeled "9,612–9,622 feet". Topotypes of *Globorotalia fohsi* and *G. mayeri* were picked and the

slides subsequently were submitted to Miss Ellisor for verification and comparison with her types.

One slide of *Globorotalia fohsi* from the core at a depth of 9,612 to 9,622 feet in the No. 1 Ellender, now in hand, contains eight adult specimens, seven with sinistral coiling and one with dextral. They fall within the limits of *G. fohsi* and *G. barisanensis* LeRoy (= *G. fohsi*) as redescribed by Blow and Banner (1966, p. 290, pl. 1, figs. 5–7; pl. 2, figs. 8–9, 12; p. 292, pl. 1, figs. 3, 6–7) and are more strongly keeled than *G. fohsi* as described by Bolli (1950, p. 88, pl. 15, fig. 4; 1957, p. 119, pl. 28, fig. 10, not fig. 9), which Blow and Banner (*op. cit.*, p. 294, pl. 1, fig. 2; pl. 2, figs. 4–5, 13) renamed *G. (Turborotalia) peripheroacuta*. One specimen, however, has a more rounded periphery and so approaches the last-named species. These eight specimens were examined recently by Blow, who found them to agree very closely with the holotype of *G. fohsi* in the Cushman Collection in the U.S. National Museum, Washington, D.C.

In her discussion of the subsurface Miocene of Louisiana, Ellisor (*op. cit.*, p. 460, text-figure 10) recorded *G. fohsi* at the top of the *Uvigerina lirettensis* Zone (9,721 feet) in the Humble No. 1 Frank Wurzelow well, which is only 3,750 feet northwest of the Ellender No. 1 well (text-figure 1) and in the Lirette Field, as well as in other wells in Terrebonne, St. Mary, St. Martin, and other parishes.

Another point merits noting with respect to Butler's conclusion (1962, p. 271) that *Bigenerina humblei* Cushman and Ellisor "could not have occurred at 9,612 feet in the Lirette Field" and is to be expected at much greater depths than those reached by any well in this field. Akers (1955, p. 659), in his description of *Globorotalia canariensis minima* Akers from the Ellender No. 1 well, recorded specimens of this taxon from the *Textularia stapperi* Zone at 9,592 and 9,602 feet, from the *Bigenerina humblei* Zone at 9,898 to 9,943 feet and from the *Cibicides carstensi opima* Zone at 10,132 feet and below.

In regard to the claim that *Globorotalia fohsi* does not occur in any wells in the Lirette Field that do not penetrate at least 13,500 feet (which is the deepest of any of the wells in the field), we further point out that Israelsky (1949, chart 1), who was well acquainted with the species described by Cushman and Ellisor (*loc. cit.*), recorded *G. fohsi* at about 9,650 feet (estimated) and above the top of *Cibicides carstensi* in the Union Producing Company No. 1 Delta Securities well in Sec. 23, T. 19 S., R. 19 E., less than a mile northeast of Ellender No. 1 well and in the same field (text-figure 1). In this same well Israelsky also recorded *G. fohsi* associated with *Cibicides carstensi* at about 10,100–10,200 feet (estimated).

The statement by Butler *et al.* (*op. cit.*, p. 1) that "No specimens of *Globorotalia fohsi fohsi*, *Globorotalia mayeri* . . . were noted either in the Ellender No. 1 or No. 6 wells" is surprising, in that Butler herself (1959, p. B.1.59.26, unnumbered fig.) illustrated a toptype of *Globorotalia mayeri* (Cushman and Ellisor from the core at 9,602–9,612 feet in the Ellender No. 1 well (Louisiana Geological Survey Reference Collection, toptype no. 1036). The Shell Oil Company samples from the Ellender No. 1 well contain *Globorotalia mayeri* as high as 7,730 feet (several) and also contain *G. fohsi* s.s. as high as a core from 9,040 feet (rare). In this well both species were found sporadically (or commonly at some depths) in cores from 9,930 to 11,500 feet, as well as in the occurrence already noted at 9,612 feet. Butler later (1962, text-figure 2) showed the stratigraphic horizon in the Ellender No. 1 at a depth of 9,612 feet as being within the *Textularia articulata* Zone, although she (1959, p. B.59.26; 1962, text-figure 2) earlier indicated that *G. mayeri* ranges no higher than the underlying *Bigerina nodosaria directa*-*Cibicides carstensi* Zone.

The suggestion has been made that samples examined by Ellisor (and presumably those seen by Akers and by ourselves) did not come from the Humble No. 1 Ellender well but from some other well in another field. The same suggestion may be made concerning the samples examined by Butler. Against the supposition that the samples examined by Ellisor were not from the No. 1 Ellender well, the following evidence must be taken into account. 1) Paleontological reports prepared while the No. 1 Ellender well was being drilled record a cored interval at a depth of 9,612 feet. 2) The electric log of the No. 1 Ellender well agrees closely with the core descriptions in the Humble paleontological reports. 3) The electric log agrees with Humble's records as to a total depth of 12,168 feet for this well. Ellisor (*op. cit.*, text-figure 10) showed an estimated depth of about 12,150 feet, and cores recorded as from the well received by the Shell Oil Company range from a depth of 400 feet to 12,168 feet, the deepest interval being 12,132 to 12,168 feet.

That two Louisiana wells might have been drilled about the same date into the Miocene with the same core intervals and the same total depth seems highly improbable.

The differences between the concept of *Globorotalia fohsi* based on the original description and figures and on toptypes, and that of Bolli (1950, 1957) for *G. fohsi fohsi* have been recognized, so that the recent paper by Blow and Banner (1966) is regarded as a greatly needed clarification. A new "type locality" for *G. fohsi fohsi* in Trinidad as proposed by Butler *et al.*

(1965), however, serves no purpose. The knowledge that *G. fohsi fohsi* occurs in a certain stratigraphic horizon in a certain locality in Trinidad or elsewhere is sufficient.

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