

in ♂, less so in ♀, with small isolated punctures which are separated by more than their own diameter, the lateral ones containing a minute recumbent seta, without any impunctate median line. *Elytra* oblong-ovate, rather rapidly narrowed at the apex, with roundly rectangular shoulders; the very shallow striæ containing small isolated punctures, striæ 6-8 more or less confused in the basal third; the intervals broader than the striæ, each bearing a single row of minute punctures, interval 9 carinate on its upper edge in the apical two-thirds; minute setæ on the apical area only. *Legs* rather long, with sparse minute setæ; hind femora reaching the apex of ventrite 4; joint 3 of tarsi broader than 2, lobate. *Underside* with small sparse punctures.

Length 3 mm., breadth 1 mm.

MAURITIUS: Pointe aux Feuilles, 2 ♂♂, 1 ♀, x. 1933 (*R. Mamet*).

Nearly allied to *P. rodriguesi* Waterh., 1876, which differs as follows: the prothorax is less strongly rounded laterally, less convex dorsally, with much coarser punctures; the elytra are proportionately shorter and broader, and the punctures much larger, being as broad as or broader than the intervals, except in stria 1, in which they are much smaller; the legs are much shorter, the hind femora reaching only the apex of ventrite 2.

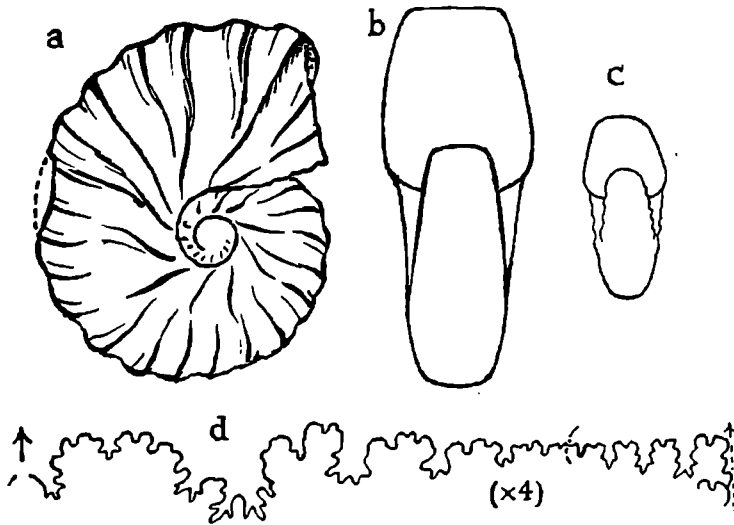
XVIII.—*The Canadian Ammonite Genus Gastrolites in the English Gault.* By L. F. SPATH.

DURING the last few years several interesting or new Gault ammonites have been found, especially at Folkestone, whence Mr. R. Casey has sent me a number of examples which he recognized as different from the forms described in my Gault Monograph. I have already referred to some of the new finds in a recent note*, and Mr. Casey † himself intends to record the more interesting or new species, but he has kindly asked me to describe

* Spath, Field Meeting at Folkestone, Kent. Proc. Geol. Assoc. vol. xvi. 1935, p. 429.

† A note by Mr. Casey, entitled "Recent Additions to the Albian Ammonoid Faunas of Folkestone," has since appeared in the 'Geological Magazine' (October 1936, pp. 444-48).

the most important find of all, namely an ammonite which not only belongs to a genus entirely new to England and Europe, but which is extremely close to species of the Canadian western interior, *i. e.*, Alberta and British Columbia (*Gastrolites canadensis* Whiteaves sp., and allies), hitherto referred to the Lower Albian with some hesitation. Apart from enabling us now to give a more definite date to the upper part of the Peace River Formation of Alberta, the new ammonite, like the southern genus *Engonoceras* discovered some years ago, shows



Gastrolites cantianus, sp. n. Side-view (a) and outline whorl-section (b), also of inner whorls (c), with suture-line (d) enlarged, $\times 4$. Gault, bed VIII., *cratum* zone, Folkestone (R. Casey Coll.).

that elements of entirely different marine provinces can and do occur in the English Gault. The discovery is thus as important from the palæogeographical point of view as the discovery of a Himalayan Eotriassic fauna in East Greenland. Unfortunately we are as yet incompletely informed about the Cretaceous of East Greenland and Spitsbergen, in both of which areas doubtful *Archoplites* have been found and in which *Gastrolites* is likely to occur.

Description.

The new form, for which I propose the name *Gastrolites cantianus*, sp. n., may be characterized as follows:—

Diagnosis.—Shell rather high-whorled (subplatygyral), rather inflated (subpachygyral), fairly involute (subangustumbilicate). Whorl-section subrectangular in adult, with gently convex sides, flat venter, and high umbilical wall, but rounded edge. Greatest thickness near umbilical border. Inner whorls with rounded and almost smooth periphery. Flat, broad ribs, flexuous, and prorsiradiate, indistinctly bifurcating or intercalated, about 10 at umbilical end and 22 at periphery, continuous across venter, with conave interspaces about as wide as the ribs. Suture-line with very unsymmetrical first lateral lobe and low, simplified saddles.

Measurements.—

Diameter.....	46 mm.
Height of last whorl . . .	46 per cent.
Thickness of last whorl .	41 "
Umbilicus	19 "

Horizon and Locality.— Gault, Junction Bed 8, *cristatum* zone, Folkestone (R. Casey Coll.).

Affinities.

Gastrolites cantianus, sp. n., combines the lateral aspect of *G. kingi* McLearn * with the peripheral aspect of *G. canadensis* (Whiteaves) †, but it differs in dimensions as well as in other features from all the Canadian species described by McLearn. These differences, however, are of not more than specific importance, and the suture-line of the new form is almost identical with that of some of the Canadian species. On a previous occasion ‡ I expressed the opinion that this almost pseudoceratitic suture-line of *Gastrolites* and its external resemblance to *Knemiceras* made the genus somewhat intermediate between the Hoplitidæ and their offshoots, the Engono-

* "The Ammonoid Genera *Gastrolites* and *Neogastrolites*," Trans. Roy. Soc. Canada, (3) sect. iv. vol. xxvii. p. 19, pl. iii. figs. 4-5 (1933).

† See *ibid.* p. 15, pl. i. figs. 4-5.

‡ Spath, "The Ammonoidea of the Gault," Monogr. Pal. Soc. pt. viii. pp. 340, 342 (1931).

ceratidæ, but the Pseudoceratites, which are not a natural unit, include derivatives of many other families.

The Hoplitid origin of the present form is beyond dispute. The external suture-line is that of a typical *Anahoplites**, and even the internal portion differs only in having shorter and simpler saddles. Moreover, up to a diameter of 15–20 mm. the rounded periphery resembles that of many immature Hoplitids, especially *Dimorphoplites*, although *Arcthoplites jachromensis* (Nikitin)†, in spite of its rather complex suture-line, is probably more closely related. *Gastroplites*, of upper Meso-Albian age, in fact, is probably a descendant of the same stock that gave rise to *Arcthoplites*, of basal Meso-Albian age (*dentatus* zone); while *Neogastroplites* McLearn, being much later than *Gastroplites*, from which it seems to be derived, must be of upper Neo-Albian age. That the fundamental stock is the group (*Deshayesites*?), which I ‡ discussed in connection with an almost identical Indian equivalent, is suggested by the very similar suture-line, but other Parahoplitid offshoots (*Pseudosonneratia*, *Hypacanthoplites*, *Cymahoplites*) of the Lower Albian are also close to the other genera here discussed. Until *Arcthoplites* especially is more completely known it is impossible definitely to name the ancestor of *Gastroplites*.

I agree with McLearn § that the successive Lower Cretaceous faunas of Alberta and British Columbia came from the north, whereas the earlier (Aptian) fundamental stock (*Deshayesites*?, ex Desmoceratidæ) is almost universal. *Gastroplites* in the English Gault is thus also apparently an immigrant from the Arctic Province, while *Engonoceras* is a straggler from the south, two solitary strangers among the indigenous and wonderfully varied and prolific Hoplitid faunas.

* Compare, e. g., Spath, *loc. cit.* (Gault Ammonoidea), pt. iii. p. 145, text-fig. 145 g (*Anahoplites daviesi* Spath).

† "Les Vestiges de la Période Crétacé dans la Russie Centrale," Mém. Com. géol. St. Pétersb., vol. v. no. 2, p. 57, pl. iv. figs. 1–7 (1888).

‡ Spath, "Revision of the Jurassic Cephalopod Fauna of Kachh (Cutch)," Pal. Indica, n. s. vol. ix. no. 2, pt. vi. p. 801 (1933).

§ "Problems of the Lower Cretaceous of the Canadian Interior," Trans. Roy. Soc. Canada, (3) vol. xxvi, section iv. pp. 170, 172 (1932).

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XIV.—*Studies of Mexican Fossil Foraminifera.* By
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GRIMSDALE, B.Sc.*.

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I. ON THE PRESENCE OF AN INTERSEPTAL CANAL-
SYSTEM IN *MIOGYPSINA* SACCO.

Abstract.

Canals are shown to be present in the three subgenera of *Miogypsina*, and the descent of *Miogypsinoides* from *Rotalia* is postulated. The subfamily Miogypsininae is transferred from the Orbitoididae to the Rotaliidae, and a tabular classification of part of the latter family appended.

INTRODUCTION.

While examining specimens of *Miogypsina* (*Miogypsinoides*) *complanata* Schlumberger from the Meson formation (Middle to Upper Oligocene) of eastern Mexico, an example broken in the equatorial plane was seen to

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