

7. *A New Lower Cretaceous Ammonite, Crioceras ishiwarai, from Ôshima, Province of Rikuzen.*

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[With Plate IV and Two Text-Figures]

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·*CRIOCERAS ISHIWARAI*, Yabe and Shimizu, SP. NOV.

Pl. IV, Text-Figures 1, 2.

A large, but deformed internal mould of an evolute ammonite, 260 mm. in longer diameter, and comprising nearly the entire outer whorl, with suture-lines preserved, and a part of the next inner whorl.

Whorls gradually enlarging; flanks ornamented with numerous transverse ribs in two different kinds, and slightly bent forwards on the ventral side. Broader ribs about twelve in number on the outer one-half volution, provided with three spines of which scars only are preserved obscurely; spines arranged in spiral rows, one along the siphonal line, one on the ventral border, and a third on the median line between the former two. Narrower ribs numerous, numbering 5—8 in each interval between the broader ones; mostly simple, but some bifurcating near the ventral border. Suture-lines consisting of three saddles and lobes on one side of the shell; external saddle almost symmetrically bipartite, narrow-



1

2

Text-Figures 1—2. Natural size.

Suture-lines of *Crioceras ishiwarai* Yabe and Shimizu

1. inner part; 2. outer part.

A.S, antisiphonal line; S, siphonal line.

ing toward the base; first lateral lobe tripartite, longer than the siphonal one and occupying the middle part of the flank; first lateral saddle more or less symmetrically bipartite, narrower and lower than the external one; second lateral lobe tripartite, shorter than the first lateral; antisiphonal lobe short, being the shortest of all.

A single specimen, the one illustrated, was collected by Mr. Yoshio Ishiwara many years ago in a black shale exposed at Shiraito-hama, on the small island of Ōshima, in the Kesenuma inlet and opposite the town of Kesenuma at the bay-head, Motoyoshi-gun, province of Rikuzen. Though much deformed, it is believed to represent a new species of the genus *Crioceras* and to belong to the *duwali* group of the late Professor W. Kilian.¹⁾ The specific name is in honour of the discoverer of the fossil, Mr. Ishiwara, a graduate of our Institute and now geologist of the Mitsubishi Mining Company. As the genus is known to be world-wide in geographical distribution and yet limited in geological range, all the species belonging to it serve as good horizon-markers, and the present discovery of one of its species in the Cretaceous of Ōshima is important as giving us a means of precisely correlating the deposit containing the fossil.

The present species closely resembles *C. nolani* Kilian²⁾ (= *C. duwali* d'Orb.) ranging from the Hauterivian to the Lower Barremian of Europe, though easily discriminated from it by some of the ribs being bifurcated near the ventral border and also by suture-lines somewhat different in details of construction. Our form also in most features agrees well with *C. duwali* Lev.,³⁾ which ranges from the Hauterivian to the Barremian of Europe, the point of difference being its less numerous interstitial ribs.

There is another species of *Crioceras*, belonging likewise to the *duwali* Group, known from Japan, namely *C. yagii* Yabe and Shimizu from the Lower Cretaceous of the Kwantō Mountainland;⁴⁾ this species has radial

1) W. Kilian: *Lethæa Geognostica, Das Mesozoicum, Bd. 3, Kreide, 2te Lief., 1910, p. 224; 3te Lief., 1913, p. 350.*

2) W. Kilian: *Ibid., 2te Lief., p. 224, 270, pl. IV., figs. 3 a-b.* A. Rodigiero: *Il sistema Cretacco del Veneto Occidentale compreso fra l'adighe e il Piave con speciale Rignardo al Neokomiano dei Sette Comuni. Pal. Italica, Vol. XXV., 1919, p. 112, figs. 5. 8; pl. XII., fig. 1.*

3) A. Rodigiero: *Ibid., p. 110, pl. XII., figs. 4, 6, 11.* C. Sarasin et C. Schöndelmayer: *Étude Monographique des Ammonites du Crétacique Inferieur de Chatel-Saint-Denis. Mém. Soc. Pal. Suisse, Vol. XXIX., 1902, p. 105, pl. XII., fig. 1.*

4) H. Yabe, T. Nagao and S. Shimizu: *Cretaceous Mollusca from the Sanchū Graben in the Kwantō Mountainland, Japan. Sci. Rep. Tōhoku Imp. Univ., 2nd Ser. (Geology), Vol. IX., No. 2, 1927.*

ribs broader and more prominent than that from Ōshima.

Locality: Shiraito-hama, Ōshima, Motoyoshi-gun, province of Rikuzen.

Geological age: Professor T. Wakimizu of the Faculty of Agriculture, Imperial University of Tokyō, on an early occasion assigned the Cretaceous deposits developed in the southern part of Ōshima—including also the black shale-bed in which at a later time the present fossil was obtained by Mr. Ishiwara—to the Gault-Cenomanian, basing his decision on the occurrence of *Trigonia* like *T. pocilliformis* Yokoyama which was then thought to be an indicator of the age. According to Mr. T. Nagao, several specimens of *Trigonia* obtained in a sandstone lying a little below the *Crioceras* bed are closer to *T. hokkaidoana* Yehara than to *T. pocilliformis*. In the Sanchū Graben of the Kwantō Mountainland, the latter species of *Trigonia* is found, together with *Crioceras yagii* Yabe and Shimizu, in the Ishidō Group, which is possibly contemporaneous with the *Crioceras* bed of Ōshima, while *T. hokkaidoana* occurs in the Kawarazawa Group, the next higher division of the Cretaceous of the Sanchū Graben.¹⁾

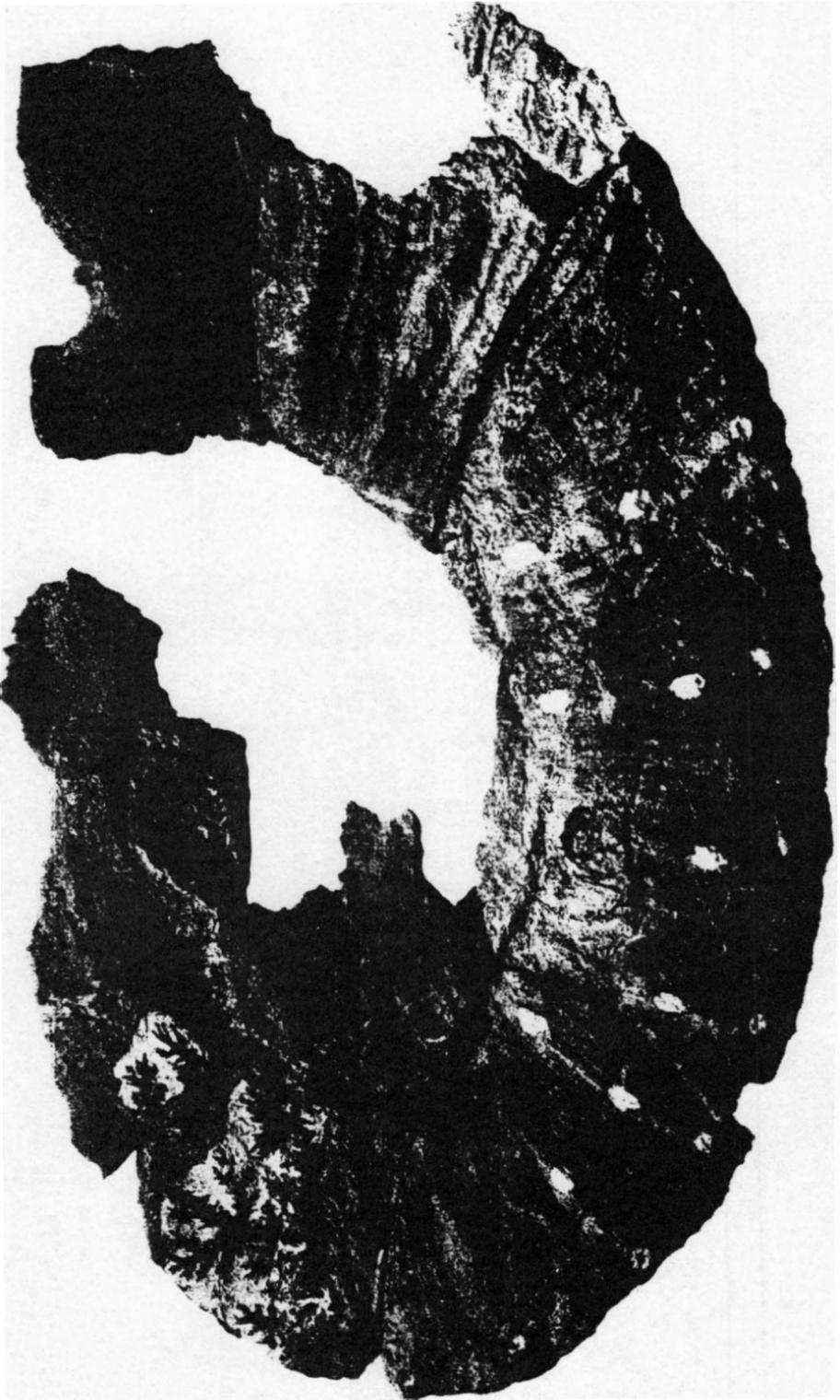
Judging from the geological range of allied species, *Crioceras ishiwarai* as well as *C. yagii* should be accepted as indicating the Hauterivian-Barremian age of their mother rocks.

1) H. Yabe, T. Nagao and S. Shimizu: Cret. Moll. Sanchū Graben, l. c.

Plate IV.

Crioceras ishikarai Yabe and Shimizu. ×9/13.

Locality: Shiraito-hama, on Ôshima, Province of Rikuzen.



Ebina photo.