

On the Fossil Coral Faunule in the Megami Formation of Sagara-chō, Shizuoka Prefecture

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〔内容抄録〕

女神累層の化石珊瑚：静岡県相良地域に発達する第三系の地質学的、古生物学的研究は古くから多くの研究者によって行なわれている。相良町北方の女神山は背斜芯部に露出する新第三紀の珊瑚礁石灰岩であることは古くから知られているが珊瑚種の報告はほとんどない。筆者らは女神山および男神山石灰岩より珊瑚化石を採集し、*Cyphastrea*, *Echinophyllia*, *Favia*, *Goniopora*, *Porites*, *Stylophora* の6属を鑑定し得た。このうち *Stylophora* を除く5属は最初の記録である。

I Introduction and acknowledgments

The purpose of this paper is to represent fossil corals obtained at two localities in the Megami formation developed in Kakegawa district, Shizuoka Prefecture.

We have detected 6 genera *Cyphastrea*, *Favia*, *Stylophora*, *Porites*, *Goniopora* and *Echinophyllia* of Scleractinian corals, excepting *Stylophora* not recorded in earlier papers.

The writers are indebted to Dr. Ienori Fujiyama of the National Science Museum for his kindness to forward the Museum collections for the writers' study.

II Geological note

Detailed stratigraphical studies of the above mentioned area have been carried out^{1) 2) 3)}. According to the study of the Geological map of Kakegawa District by Dr. Jiro MAKIYAMA⁴⁾, Ooigawa group is divided into lower and upper subdivisions, the former is Megami formation and the latter is Horai formation. Megami formation is disposed in an early Miocene cycle of sedimentation developed upon the quasi-cratonic shelf consisting of sandstone, bioherms and thick mudstone with a basic pyroclastic seam.

The limestone bioherms contain the following foraminifera, *Lepidocyclina*

nipponica, *L. angulosa*, *L. perornata* and *Miogypsina kotoi*. From the above evidence, Ooigawa group was identified as the Lower Miocene in age. Horai formation is made of Miocene Flysch.

The anticlinal axis with name Megami anticline, extends in SW-NE direction on the north of the Sagara-chō

Table 1. Stratigraphical succession in the Sagara District

pliocene	Kakegawa group	
	~~~~~	unconformity
late miocene	Sagara group	
	~~~~~	unconformity
early miocene	Oigawa group {	Horai formation
		(Megami limestone bioherms)
		Megami formation
		~~~~~
		unconformity
oligocene	Setogawa group	

### III Localities of Specimens

Writers collected the specimens from the Megamiyama and Ogamiyama limestones. The Megamiyama limestone is lenticular in shape, 660m. long and 80m. wide. The Ogamiyama limestone is located at a distance about 550m. in a direction NE from Megamiyama. The both limestones are disposed on the Megami anticlinal axis (fig. 1).

Localities	Specimens No.
Megamiyama	Mg. 740301
	Mg. 740306
	Mg. 740311
Ogamiyama	Og. 740303
	Og. 740305
	Og. 740308

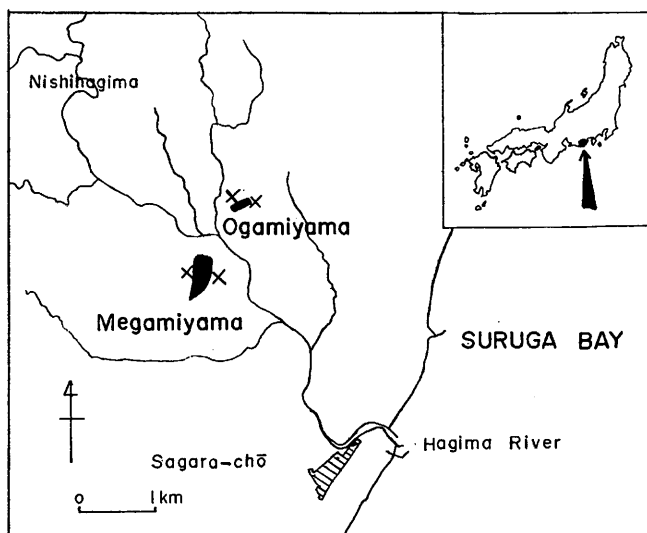


Fig. 1 Location of the Megamiyama and the Ogamiyama. X: Sampling locality.

## DESCRIPTION OF SPECIES

### *Echinophyllia yabei* n. sp.

Pl. I, figs. 1—3

Corallum explanate, large, attached with large base. Type specimen is a massive limestone of 75 × 68 × 75mm, formed of aggregation of explanate thin fragments of corallum. Upper surface (calicinal), (fig.1) 85 × 65mm, covered some 27 calicular centres and septo-costae 2mm thick arrange in irregular rows. Septo-costae from pallisade 6—8 per 1cm, each of which shows spindle-shape in section; pointed at calicinal hole, towards centre of calice. Surface slightly, undulate and large spiny dentations on upper edge of septocostae, some ten or twelve are observable. Wall or theca absent, represented by the innermost dissepiments. Dissepiments well developed, 5 in number per 5mm. Columella trabecular, formed of few palillae, few septa extending there; septa within calicular hole 12 or 10 in number, septal groups are 3 or 4. Central distance of calicular centre varies 11—18mm, usually shorter in the same valley (6—8mm). Septal arrangement in a calicular hole shows in fig. 3.

Remarks: Above is the description of our specimen, general shape of the corallum is not fully know, it belongs evidently a representative of genus *Echinophyllia* KLUNZINGER, 1879^{6) 7) 8)} and can easily distinguishable from the type species, *E. aspera* KLUNZINGER⁹⁾ by having thick explanate corallum and 16 regular septal arrangement in calices.

Specimen No. Mg. 740301 Locality; Megamiyama, Sagara-chō

### *Favia sagaraensis* n. sp.

Pl. IV, figs. 1—4

Corallum massive, type specimen is a small fragments of massive corallum. (40 × 30 × 38mm). Shape of detailed unknow. Corallites cylindrical, firmly imbedded in vesicular exotheca; section of corallites suboval or subelliptical, average diameter 6—7mm; wall thin. Distance between calices 2mm average.

Septa thin inside calice, thick over calicinal wall (septo-theca); 20 — 30 in big oval calice. 15 — 16 reaching columella, big and small one alternating; upper margin dentate; secondary septa of younger septa provide with dentation.

Costae distinct, septo-theca thick; columella papillate formed of septal trabeculae. Paliform lobes present. Perithecal areas very vesicular.

Locality; Ogamiyama, Sagara-chō Sp. No. Og.740308

Remarks: *Favia rotumana* (GARDINER) of recent species is the nearest one.

The present species has more fewer septa. It is the single species yet described in the Japanese Miocene Bioherm.

*Cyphastrea megamiensis* n. sp.

Pl. II, figs. 1—4

Corallum massive, surface slightly undulating. Corallites cylindrical with an average diameter of. 2.5mm., rarely 2.8mm. Some 10 calices distributing on 1cm² area. Septa 12, first and second cycles are subequal and reaching columellar tangle. 12 of the third cycle are rudimentary, remain only near the wall. Columella spongy, formed of trabeculae. Dissepiments vesicular, exotheca well developed vesicular and coarser than endothecal dissepiments. Costae well developed, corresponding all the septa.

Locality: Megamiyama. Sp. No. Mg.740306

Remarks: *Cyphastrea serailia* (Forskal)¹¹⁾ 15) of the recent species is a nearest one, but the present species has slightly larger calices and the secondary septa are perforated as shown in fig. 3 (pl. II).

*Cyphastrea* sp.

Pl. III, figs. 1—4

Corallum massive, type specimen is 28 x 24mm in size. Corallites cylindrical and tortuous, 2mm in diameter often geniculate. Ethothecal dissepiments partly undevelopped: Wall very well developed, thick, probably projecting above general surface. Costae subequal, septa mostly 10 in number, arrange in three cycles. Columella trabecular, not well developed. Dissepiment vesicular. As shown fig. 4 septa varies in developpment and preservation.

Locality; Ogamiyama, Sagara-chō Sp. No. Og. 740303

Remarks: The present species has affinity on one side with *Cyphastrea ocellina* (Dana) and other side *C. japonica* Yabe & Sugiyama. Above descriptions can be distinguishable from both recent species.

Other corals Pl. II, fig. 2, Pl. III, figs. 5—6, Pl. V, figs. 1—4

Besides we have several speciemens of *Porites*, *Goniopora* and *Stylophora*. *Stylophora* is conferrable with *Stylophora pistillata* (ESPER). About these forms will be publish in another papers.



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Explanation of Plates

Plate I

- Figs. 1—3     *Echinophyllia yabei* n.sp. Sp. No. Mg. 740301  
1, 2     Polished surface  $\times 1.5$  1 transverse 2 longitudinal section  
3     Thin section (transverse)  $\times 3.6$

Plate II

- Figs. 1—4     *Cyphastrea megamiensis* n.sp. Sp. No. Mg. 740306  
1, 2     Polished surface  $\times 1.5$  1 transverse 2 longitudinal section  
3, 4     Thin sections  $\times 3.6$  3 transverse 4 longitudinal section  
2     Upper half is *Porites* sp.

Plate III

- Figs. 1—4     *Cyphastrea* sp. Sp. No. Og.740303  
1, 2     Polished surface  $\times 2$  1 transverse 2 longitudinal section  
3, 4     Thin sections  $\times 5$   
5—6     *Goniopora* sp. Sp. No. Og.740305  
5     Polished surface  $\times 1.5$   
6     Thin section  $\times 5$  transverse

Plate IV

- Figs. 1—4     *Favia sagaraensis* n.sp. Sp. No. Og.740308  
1, 2     Polished surface  $\times 2$  1 transverse 2 longitudinal section  
3, 4     Thin sections  $\times 5$  3 longitudinal 4 transverse section

Plate V

- Fig. 1—4     *Stylophora pistillata*(Esper)Sp. No. Mg.740311  
1, 2     Polished surface  $\times 1.5$   
3, 4     Thin sections  $\times 5$  4 transverse 5 longitudinal section

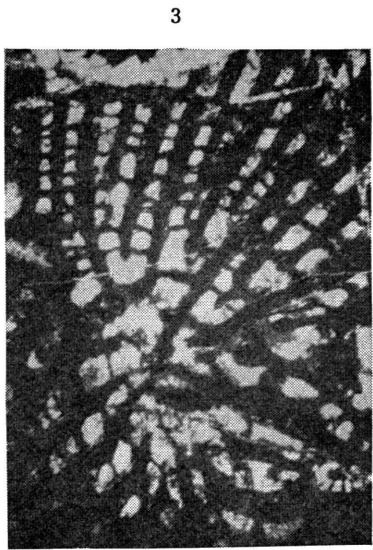
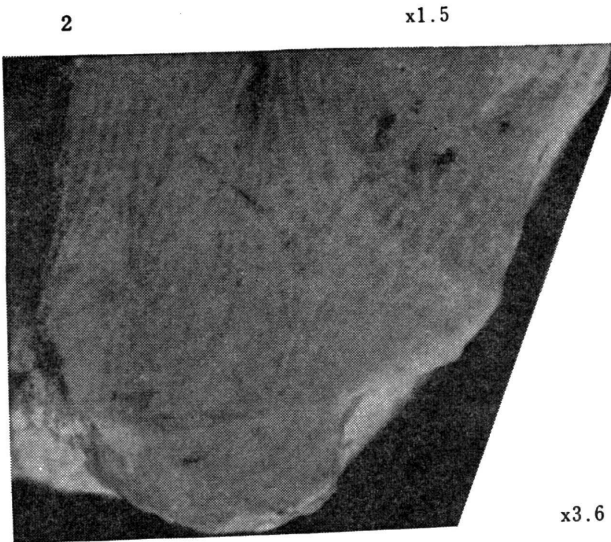
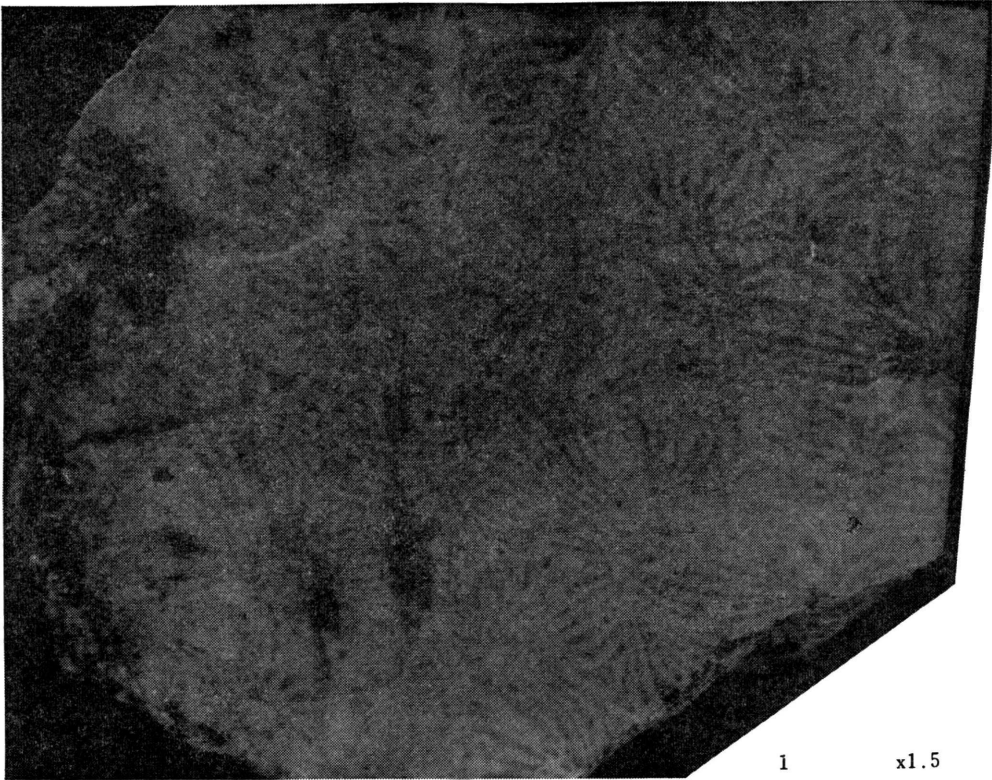
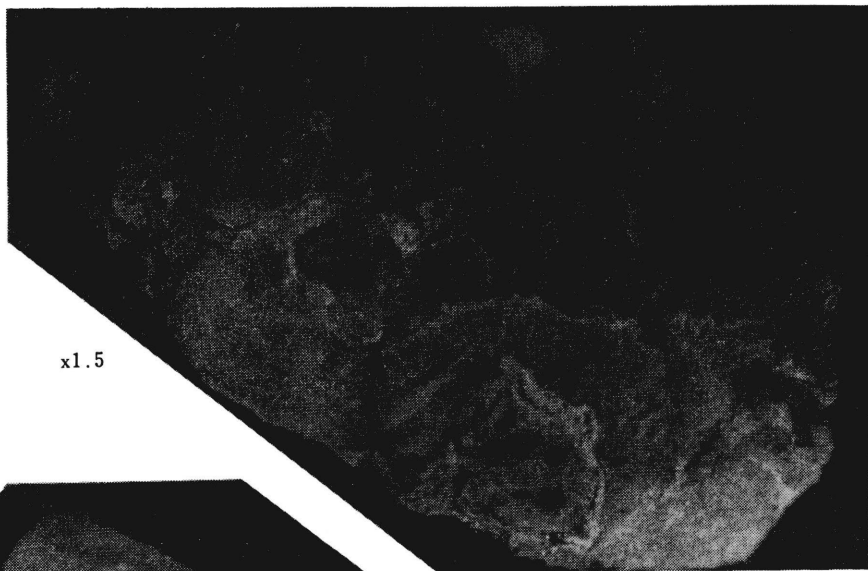


Plate II

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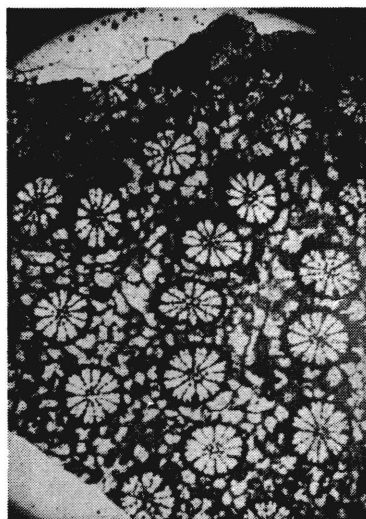
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x1.5



3

x3.6



4

x3.6

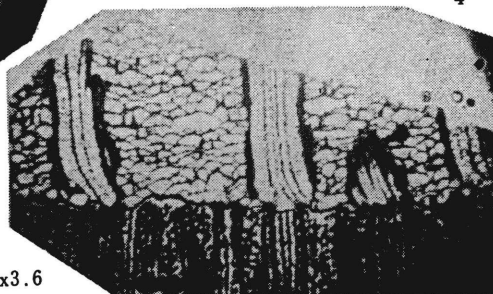
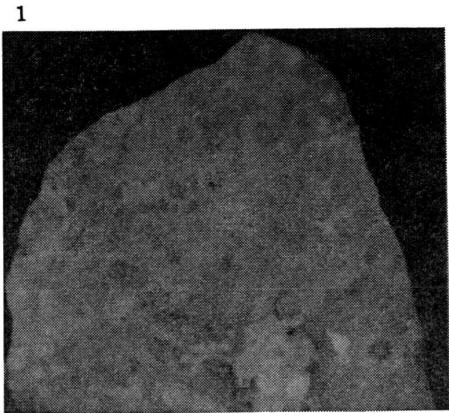
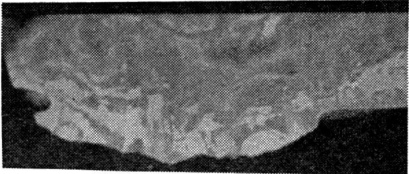


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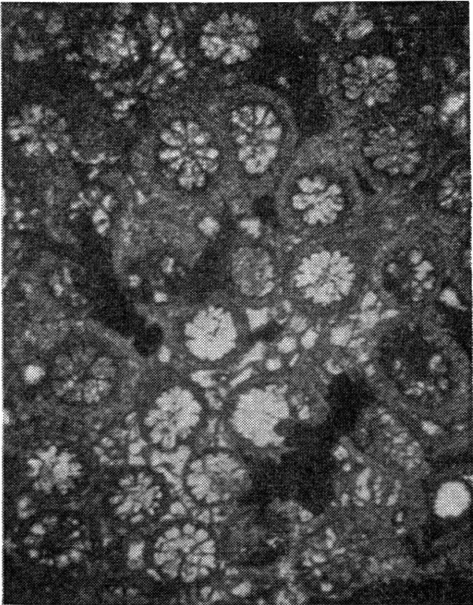
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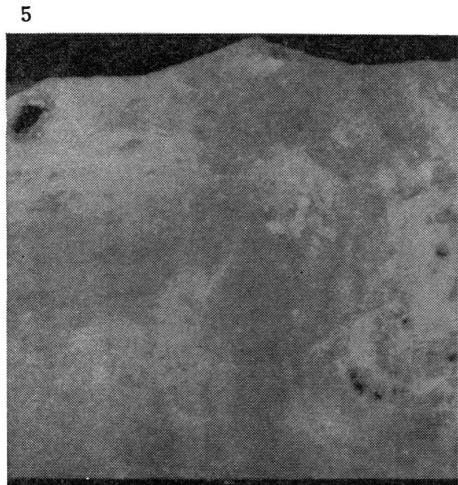
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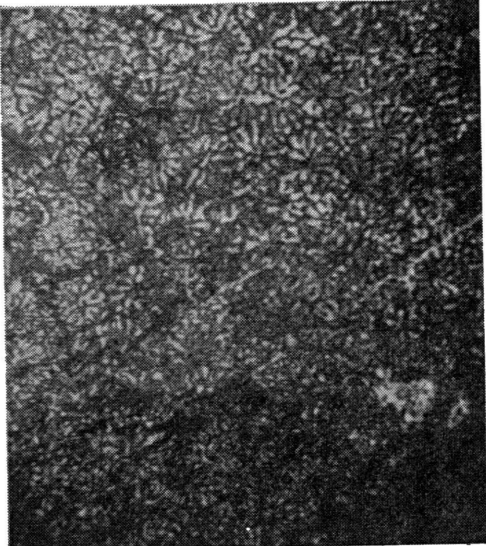
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x5



x1.5



x5



1

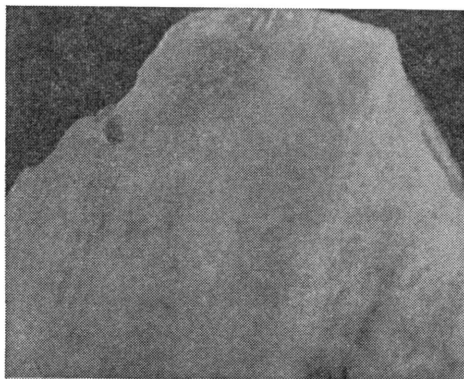
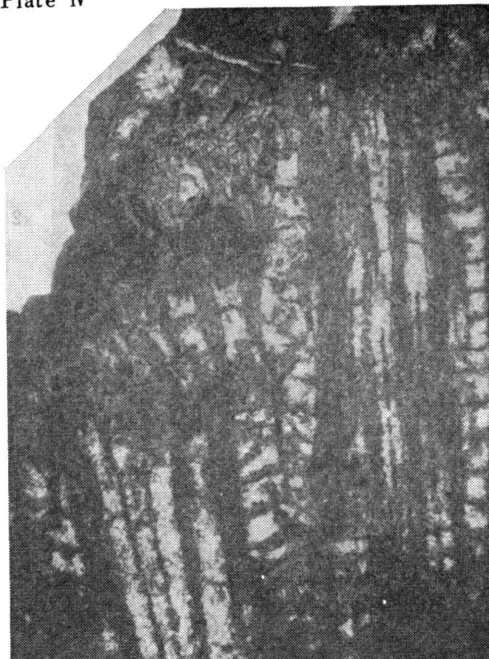


Plate IV

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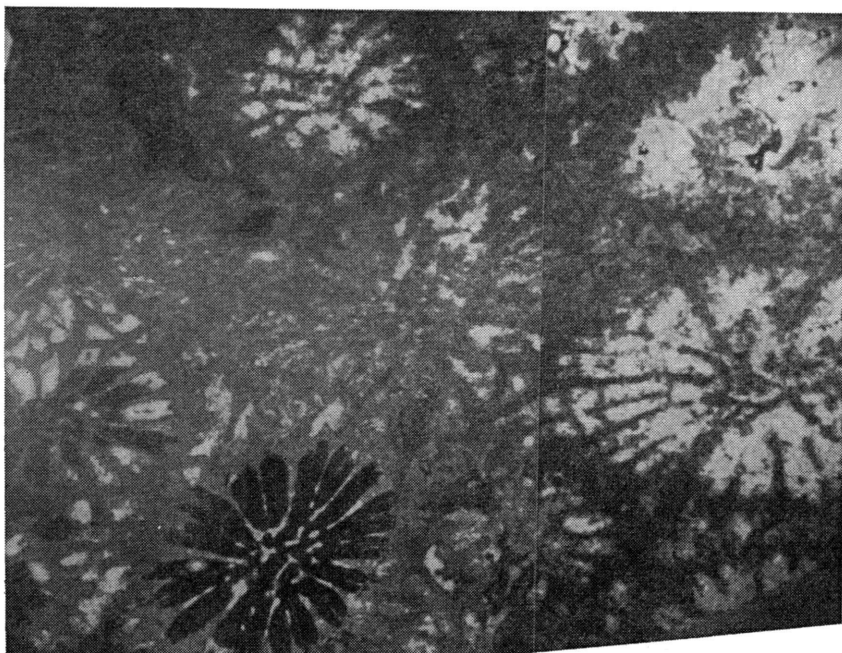
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x5

2

x2



4

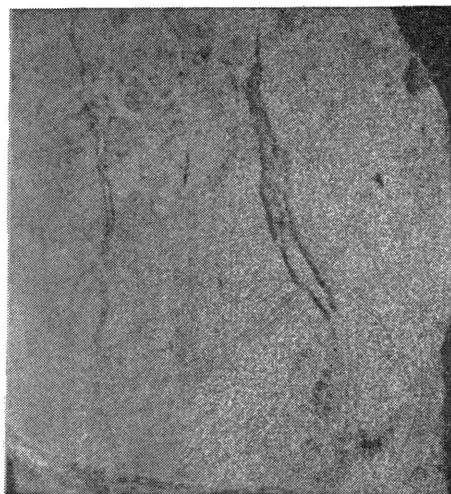
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Plate V

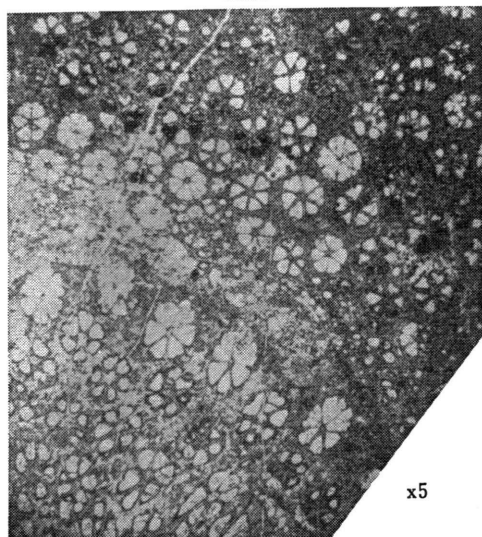
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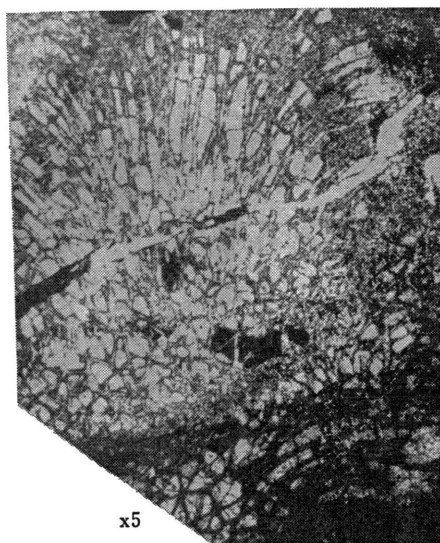
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x1.5



3



4