

## A Monograph of The Baculitidae from Japan

Matsumoto, Tatsuro  
Faculty of Science, Kyushu University

Obata, Ikuwo  
九州大学理学部

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Tatsuro MATSUMOTO and Ikuwo OBATA

The Baculitidae from Hokkaido

(A Monograph of the Baculitidae from Japan—Part 1)

**Plates 1–21**

# Plate 1

## Explanation of Plate 1

- Figs. 1-4. *Sciponoceras baculoides* (MANTELL) ..... Page 9
1. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . An example, GK. H5456a, from a block above the flood-gate of Katsurazawa generating station, derived from the lower part (basal part of IIb) of the Mikasa formation, Ikushumbets Valley, Ishikari Province (Coll. T. MATSUMOTO).
  2. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . An example, GK. H5455, from loc. Ik. 1054 under the bridge of Ohashi, Ikushumbets Valley, *Mantelliceras* sp. subzone, lower part of Mikasa formation, Ishikari Province (Coll. T. MURAMOTO).
  3. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . An example, GK. H5453 from the D-sawa, a tributary of the Ikushumbets Valley, Ishikari Province (Coll. T. MURAMOTO).
  4. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . An example, GK. H5454 from the D-sawa, a tributary of the Ikushumbets Valley, Ishikari Province (Coll. T. MURAMOTO).

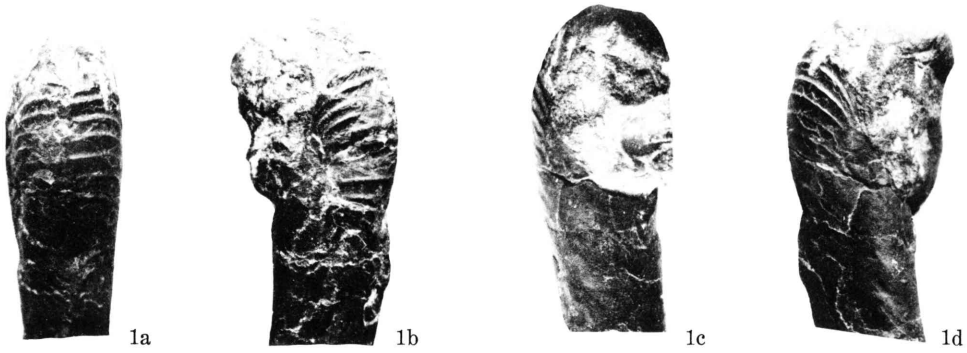


## Plate 2

## Explanation of Plate 2

Figs. 1-3. *Sciponoceras baculoides* (MANTELL) ..... Page 9

1. Ventral (a), two lateral (b, d), and dorsal (c) views of the apertural part,  $\times 2$ . An example, GK. H4275, from a pebble of the Takanbetsu, Mikasa city, probably derived from the lower part of the Mikasa formation, Ishikari Province (Coll. T. MURAMOTO).
2. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . An example, GK. H5452, from the locality under the bridge of Ohashi, Ikushumbets Valley, *Mantelliceras* sp. subzone, lower part of Mikasa formation, Ishikari Province (Coll. T. MURAMOTO).
3. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . An example, GK. H4275, the same specimen as in Fig. 1, from a pebble of the Takanbetsu, Mikasa city, probably derived from the lower part of the Mikasa formation, Ishikari Province (Coll. T. MURAMOTO).

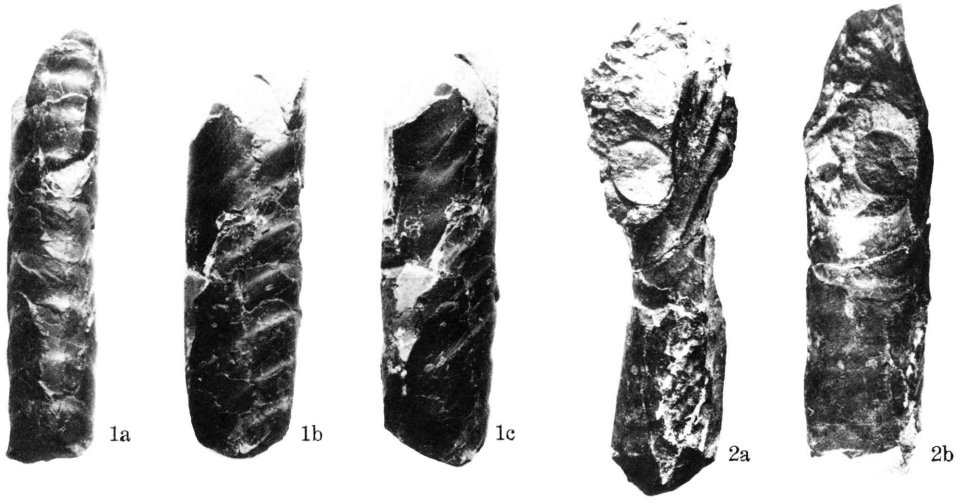




## Plate 3

### Explanation of Plate 3

- Fig. 1. *Sciponoceras orientale* sp. nov. .... Page 18  
Ventral (a), lateral (b) and dorso-lateral (c) views,  $\times 1$ . One of the paratypes, GK. H1414c, from loc. Y415, bed II<sub>n</sub>, lower part of the Saku formation, Shuyubari area, Ishikari Province (Coll. T. MATSUMOTO).
- Fig. 2. *Sciponoceras kossmati* (NOWAK)..... Page 13  
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- Fig. 3. *Sciponoceras* (?) sp..... Page 12  
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## Plate 4

## Explanation of Plate 4

- Fig. 1. *Sciponoceras kossmati* (NOWAK)..... Page 13  
Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . An example, GK.  
H4335, from loc. Ik987f, uppermost part of bed IIc, Mikasa formation, Iku-  
shumbets Valley, Ishikari Province, Hokkaido (Coll. T. MATSUMOTO).



1a

1b

1c

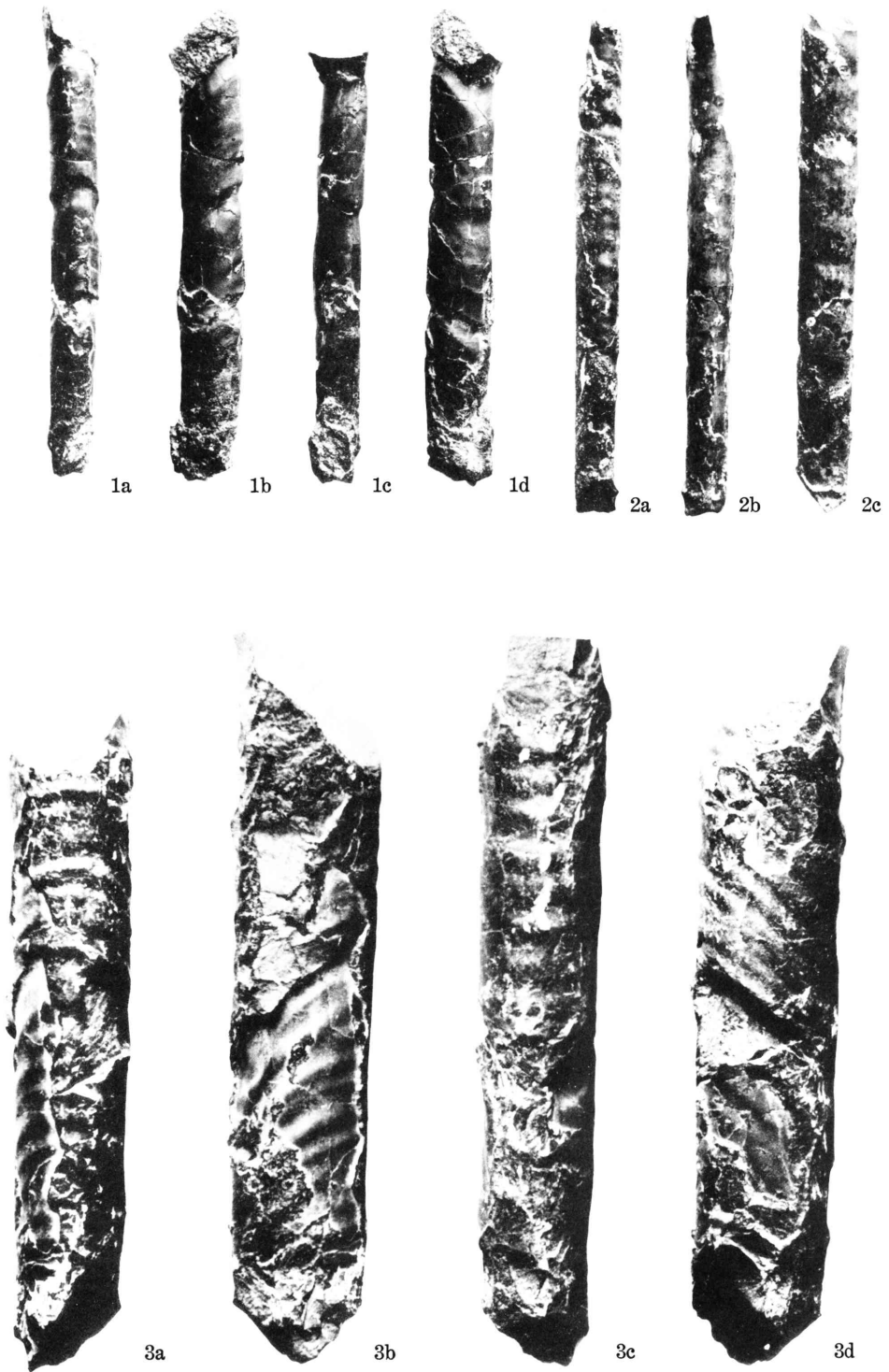
1d

## Plate 5

## Explanation of Plate 5

- Figs. 1-3. *Sciponoceras kossmati* (NOWAK) ..... Page 13
1. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . An example, GK. H4303, from loc. Ik1038, upper part of bed IIc, Mikasa formation, Ikushumbets Valley, Ishikari Province (Coll. T. MATSUMOTO).
  2. Ventral (a), dorsal (b) and lateral (c) views,  $\times 1$ . An example, GK. H4300, from loc. Ik1038d, uppermost part of bed IIc, Mikasa formation, Ikushumbets Valley, Ishikari Province, Hokkaido (Coll. T. MATSUMOTO).
  3. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . An example, GK. H4342, from loc. Ik987f, uppermost part of bed IIc, Mikasa formation, Ikushumbets Valley, Ishikari Province, Hokkaido (Coll. T. MATSUMOTO).



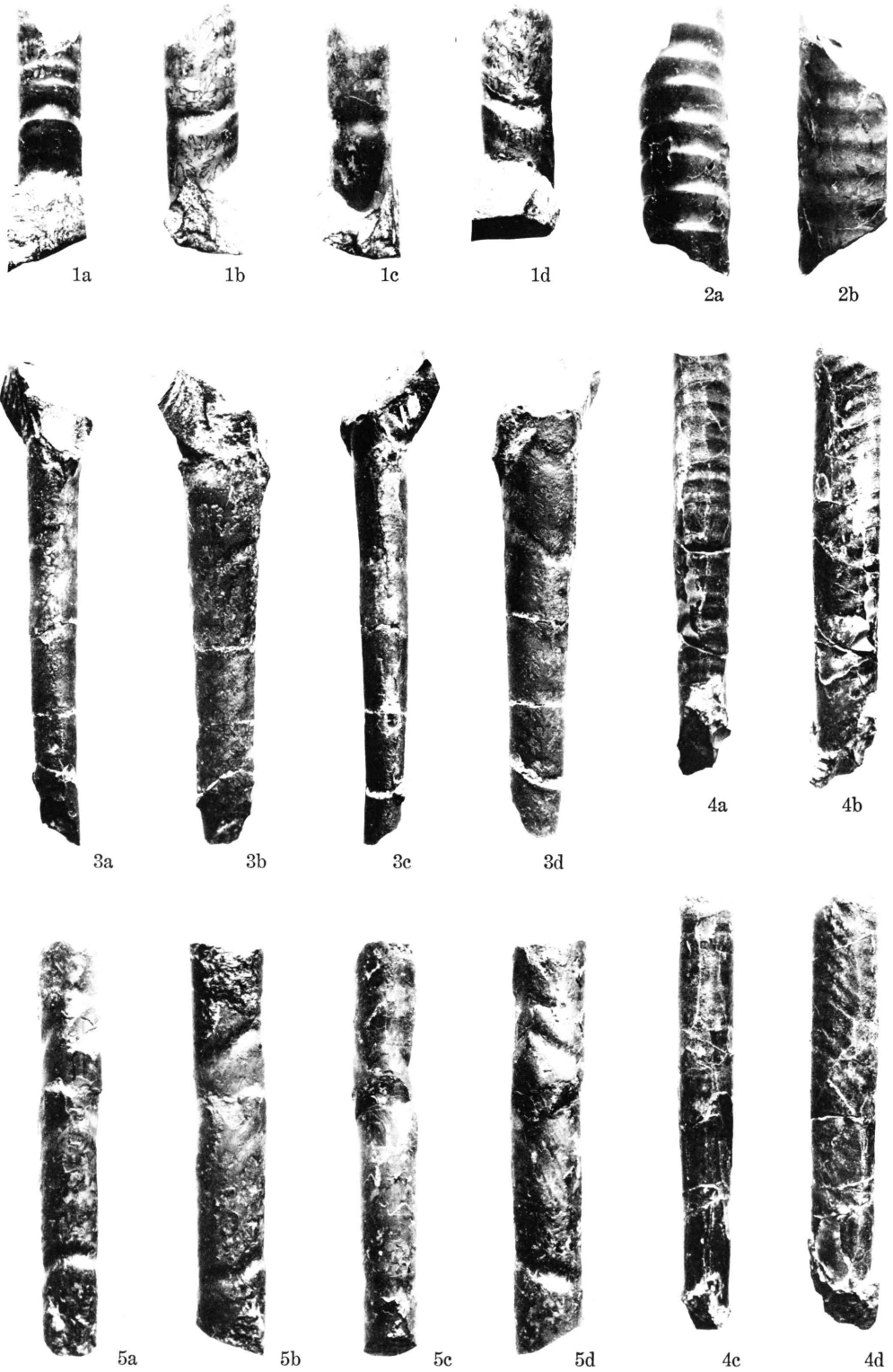


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## Plate 6

## Explanation of Plate 6

- Figs. 1, 2. *Sciponoceras orientale* sp. nov. .... Page 18
1. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . Holotype, GT. I-3160a, from loc. T610e, bed IIc ( $\alpha$ ), the upper part of Middle Yezo group, Abeshinai-Saku area, Teshio Province (Coll. T. MATSUMOTO).
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- Figs. 3-5. *Sciponoceras kossmati* (NOWAK) .... Page 13
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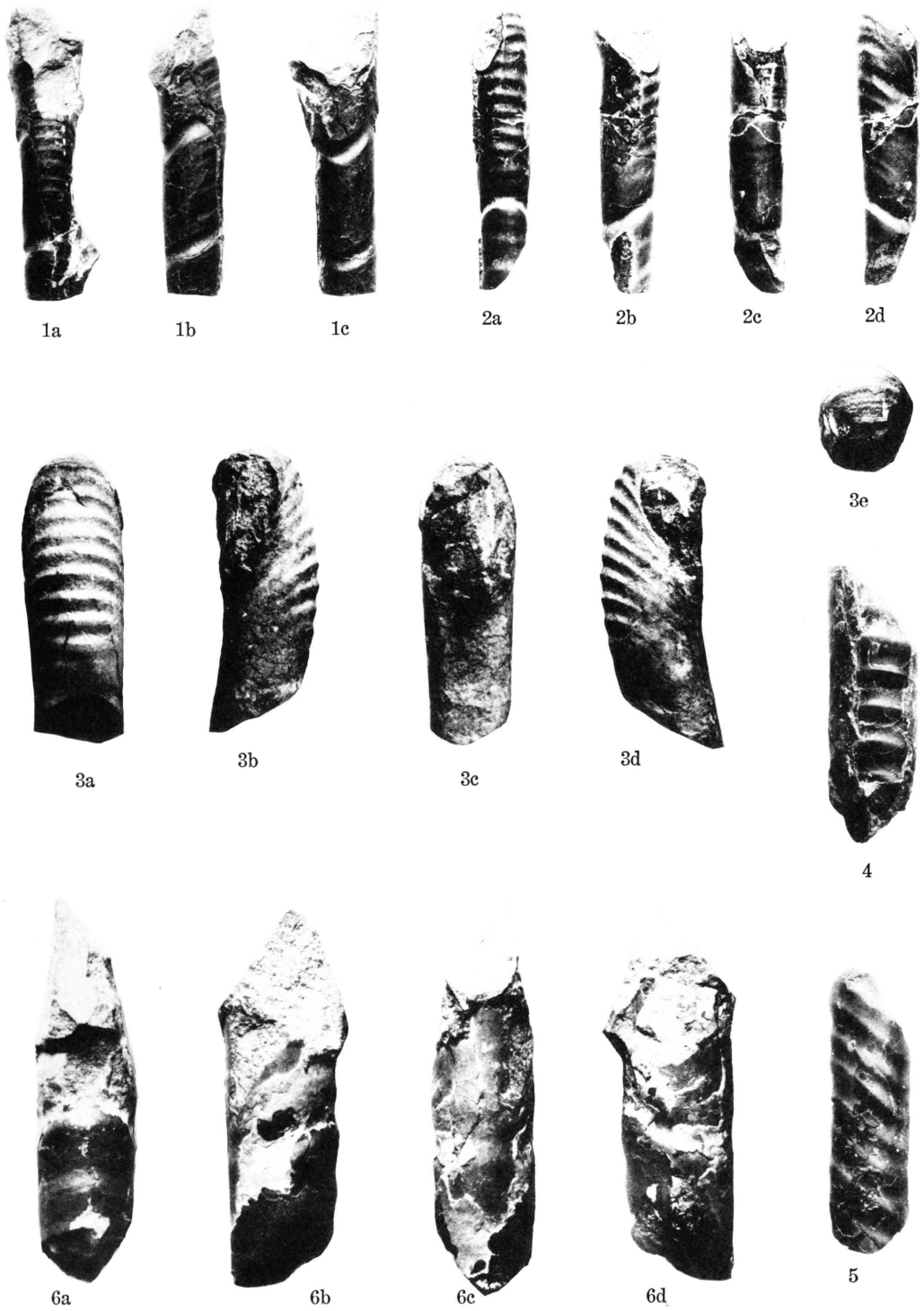


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## Plate 7

## Explanation of Plate 7

- Figs. 1-6. *Sciponoceras orientale* sp. nov. .... Page 18
1. Ventral (a), lateral (b) and dorso-lateral (c) views,  $\times 1$ . One of the paratypes, GK. H1412, from loc. Y134p, derived from beds IIq-IIr, lower part of the Saku formation, Shuyubari area, Ishikari Province (Coll. T. MATSUMOTO).
  2. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . One of the paratypes, GK. H4360, from loc. P.27, in the Porokoashibetsu, a tributary of the Ashibetsu, lower part of bed Ue4 (of TANAKA) in the lower part of the Upper Yezo group, zone of *Inoceramus hobetsensis* in Ishikari Province (Coll. K. TANAKA).
  3. Ventral (a), two lateral (b, d), dorsal (c) and frontal (e) views,  $\times 2$ . One of the paratypes, GK. H4739, from loc. T1022p7, zone of *Inoceramus hobetsensis*-*Collignonicerias teshioense* in bed IIId, lower part of the Saku formation in the Saku-Abeshinai area, Teshio Province (Coll. T. MATSUMOTO). The apertural margin is preserved in this specimen.
  4. Ventral view,  $\times 1$ . One of the paratypes, GK. H1414b, from loc. Y415, in bed IIr, lower part of the Saku formation, Shuyubari area, Ishikari Province (Coll. T. MATSUMOTO).
  5. Lateral view,  $\times 1$ . One of the paratypes, GK. H1414a, from loc. Y415, the same locality as above (Fig. 4) (Coll. T. MATSUMOTO).
  6. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . One of the paratypes, GK. H4740, from loc. T1022p7, the same locality as GK. H4739 (Fig. 3) (Coll. T. MATSUMOTO).

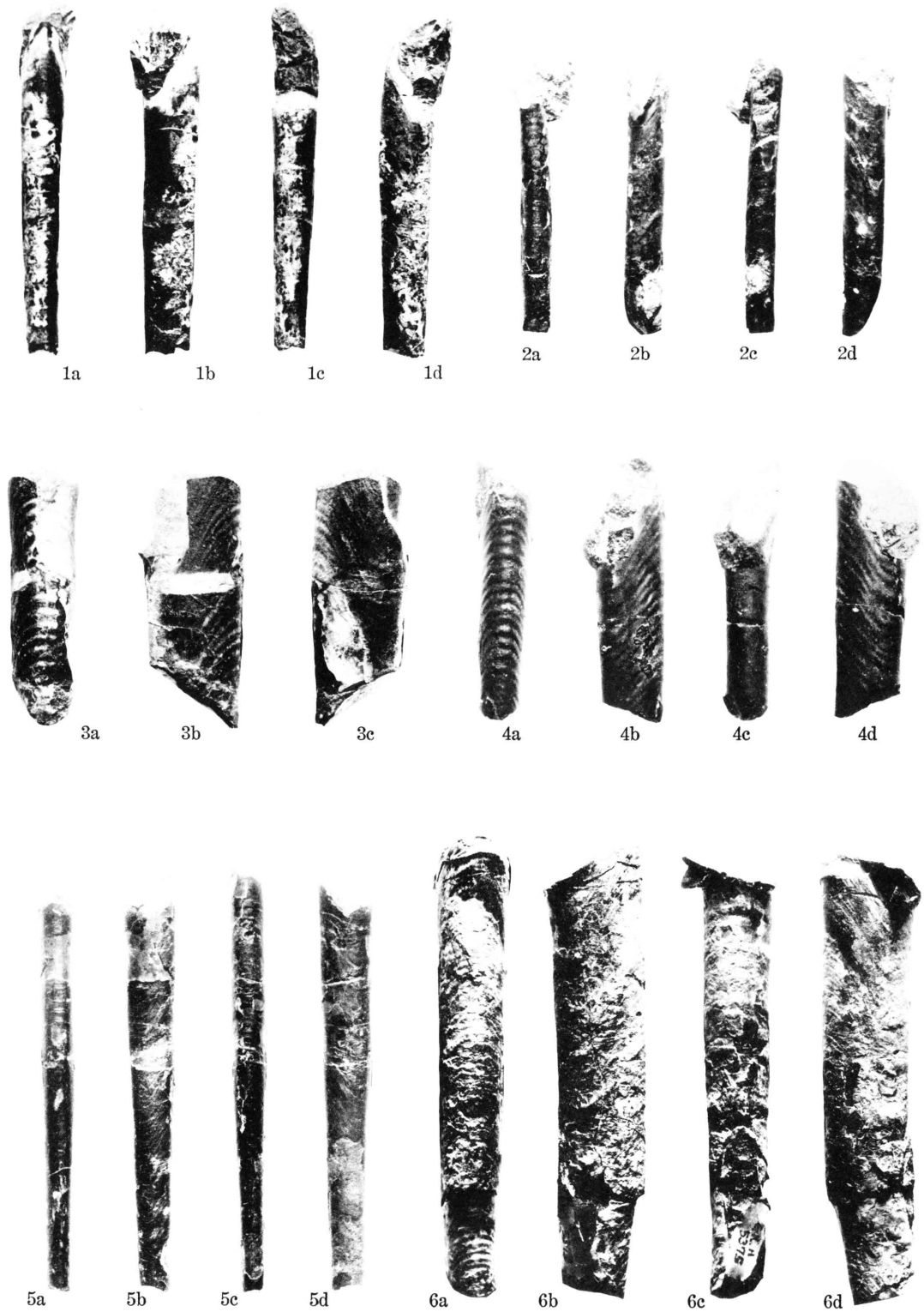


## Plate 8



## Explanation of Plate 8

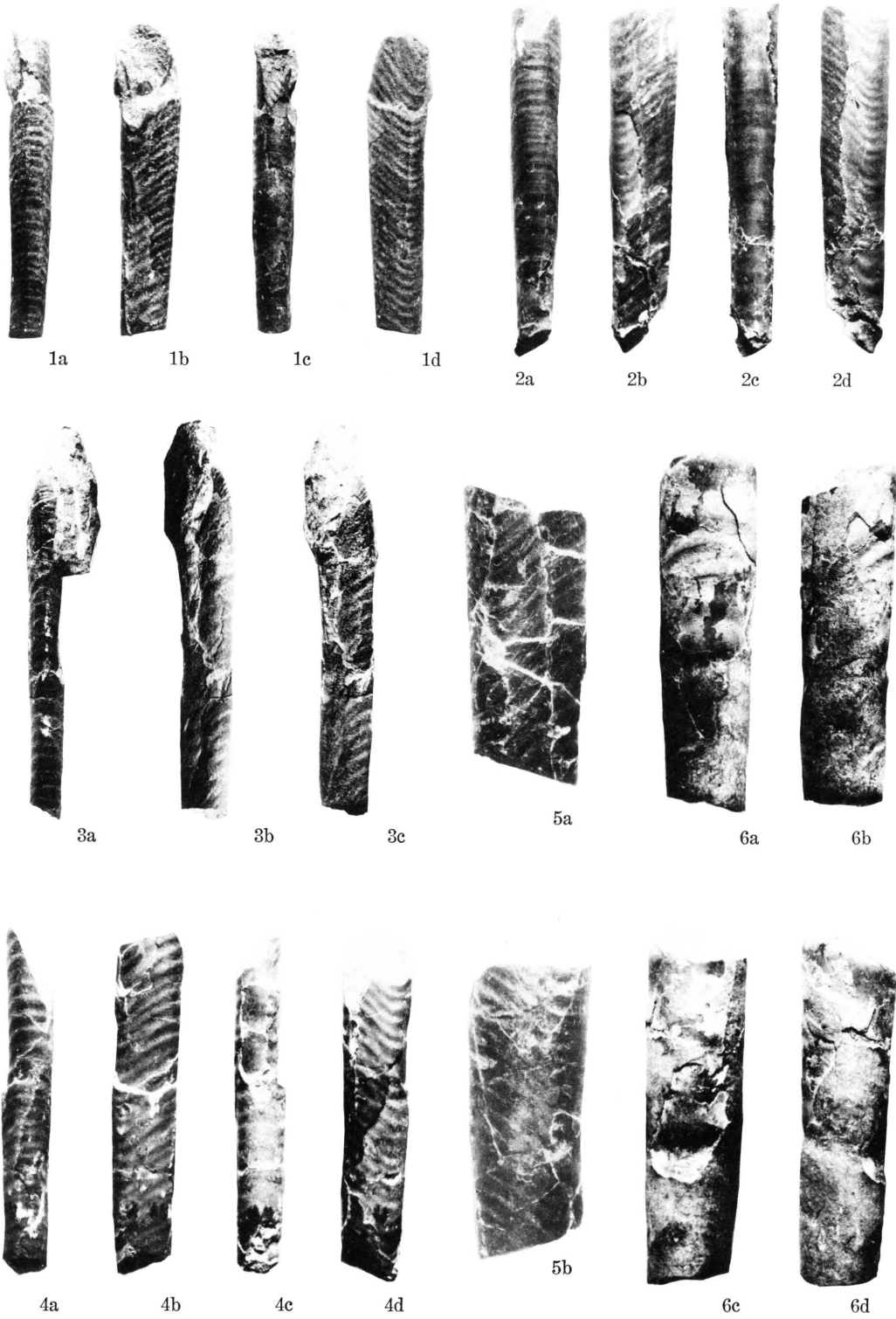
- Figs. 1-3. *Sciponoceras intermedium* sp. nov. .... Page 24
1. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . Holotype, GK. H5386, from loc. Ik2014e, subzone of *Subprionocyclus neptuni*, bed IIIa of Pombets, near the basal part of the Upper Yezo group, a tributary of the Ikushumbets Valley, Teshio Province (Coll. T. MATSUMOTO).
  2. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.2$ . One of the paratypes, GK. H4427, from loc. Ik940, bed IIIa (4), lower part of the Upper Yezo group, main stream of the Ikushumbets, Teshio Province (Coll. T. MATSUMOTO).
  3. Ventral (a) and two lateral (b, c) views,  $\times 1.2$ . One of the paratypes, GK. H5373, from loc. Ik2014e, the same locality as the holotype (Coll. T. MATSUMOTO).
- Fig. 4. *Baculites undulatus* ROMAN and MAZERAN .... Page 28  
Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.2$ . An example, GK. H4404, from loc. Ik1181, upper part of IIIa, lower part of the Upper Yezo group in the Ikushumbets Valley, Ishikari Province (Coll. T. MATSUMOTO). It shows branching of the ribs and the dorsolateral bullae on the last preserved part.
- Fig. 5. *Baculites yokoyamai* TOKUNAGA and SHIMIZU .... Page 30  
Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . An example, GK. H4604, from loc. Ik1159pl, along the Bannosawa, a tributary of the Ikushumbets, unit IIIb, zone of *Inoceramus uwajimensis* in the Upper Yezo group, Ishikari Province (Coll. T. MATSUMOTO). Rapid tapering is retained up to the late stage.
- Fig. 6. *Sciponoceras intermedium* sp. nov. .... Page 24  
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## Plate 9

## Explanation of Plate 9

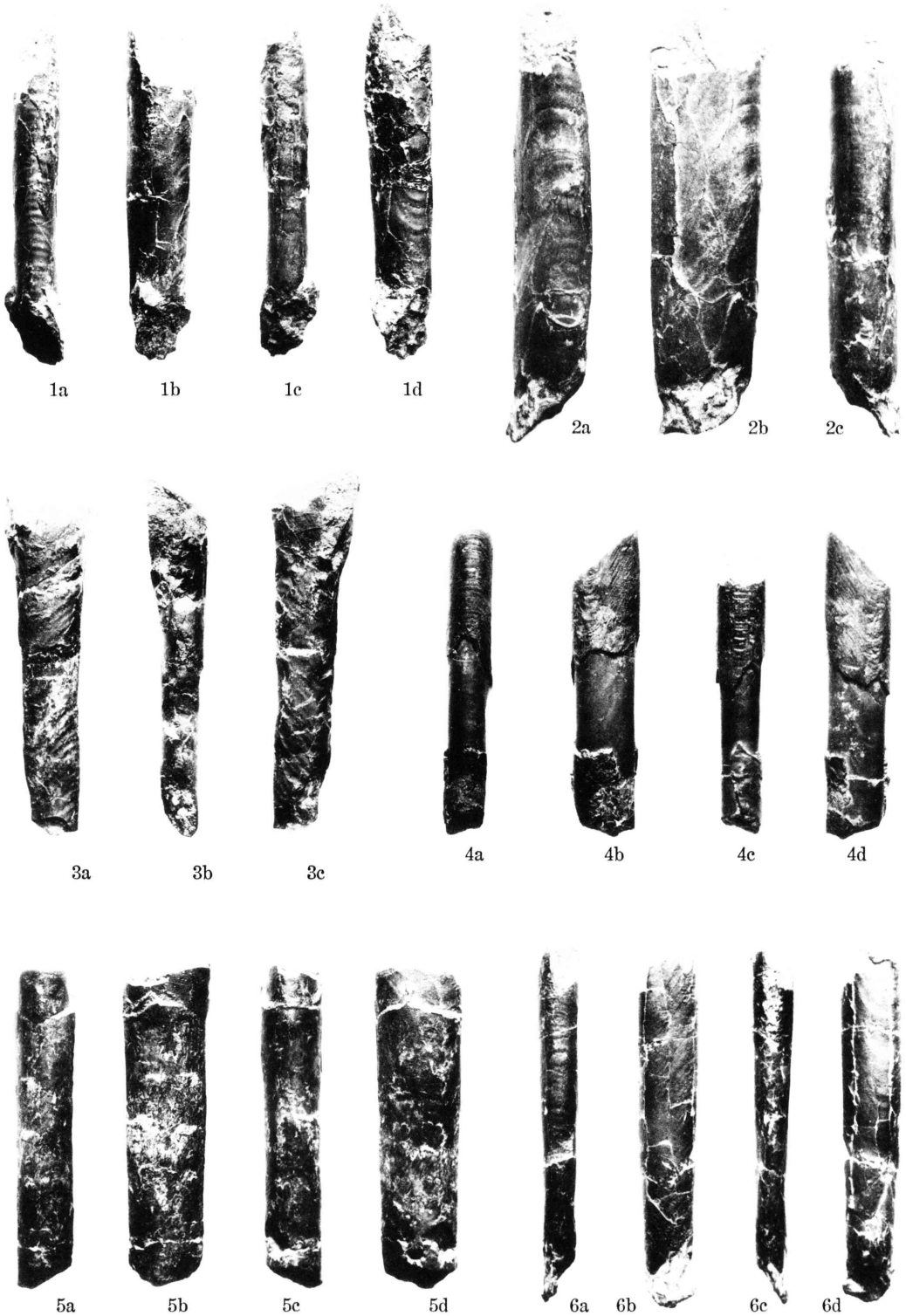
- Figs. 1-5. *Baculites undulatus* ROMAN and MAZERAN ..... Page 28
1. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.2$ . An example, GK. H4388, from loc. Ik1181, upper part of unit IIIa, lower part of the Upper Yezo group, Ikushumbets Valley, Ishikari Province (Coll. T. MATSUMOTO).
  2. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.6$ . An example, GK. H4695, from loc. T1002r, upper part of unit IIId, Saku formation, Abeshinai-Saku area, Teshio Province (Coll. T. MATSUMOTO).
  3. Ventral (a) and lateral (b, c) views,  $\times 1$ . An example, GK. H4389, from loc. Ik1181, the same locality as GK. H4388 (Fig. 1) (Coll. T. MATSUMOTO). The apertural margin is shown.
  4. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.6$ . An example, GK. H4715, from loc. T1002r, upper part of the Saku formation (IIId), Abeshinai-Saku area, Teshio Province (Coll. T. MATSUMOTO).
  5. Two lateral (a, b) views,  $\times 1.6$ . An example, GK. H4743, from loc. Yb-87p, derived from the upper part of the Mikasa formation in the Hatanosu Hills, Yubari City, Ishikari Province (Coll. M. HARADA).
- Fig. 6. *Sciponoceras orientale* sp. nov. .... Page 18
- Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.8$ . One of the paratypes, GK. H4741, from loc. T1022p7, zone of *Inoceramus hobetsensis-Collignonicerus teshioense*, lower part of the Saku formation (IIId), Saku-Abeshinai area, Teshio Province (Coll. T. MATSUMOTO).



## Plate 10

## Explanation of Plate 10

- Figs. 1-6. *Baculites yokoyamai* TOKUNAGA and SHIMIZU..... Page 30
1. Ventral (a), two lateral (b, c) and dorsal (d) views,  $\times 1$ . An example, GK. H4542, from loc. Ik966d, along the main stream of the Ikushumbets, IIIb of the Upper Yezo group, Ishikari Province (Coll. T. MATSUMOTO).
  2. Ventral (a), lateral (b) and dorsal (c) views,  $\times 1$ . An example, GK. H-4563, from loc. Ik1159p1, along the Bannosawa, a tributary of the Ikushumbets, IIIb of the Upper Yezo group, Ishikari Province (Coll. T. MATSUMOTO).
  3. Two lateral (a, c) and dorsal (b) views,  $\times 1$ . An example, GK. H4540, from loc. Ik966d, the same locality as GK. H4542 (Fig. 1) (Coll. T. MATSUMOTO).
  4. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . A specimen, GT. I-325(=MM7603)a, labeled and listed as "*Baculites teres* FORBES" by YABE (1909, p. 439), without a precise record of locality (Coll. H. YABE).
  5. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.4$ . Proposed neotype, GK. H4580, from loc. Ik1111a, Bannosawa a tributary of the Ikushumbets, zone of *Inoceramus uwajimensis*, Ishikari Province (Coll. T. MATSUMOTO).
  6. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . An example, GK. H4546, from loc. Ik964a, along the main stream of the Ikushumbets, IIIb of the Upper Yezo group, Ishikari Province (Coll. T. MATSUMOTO).



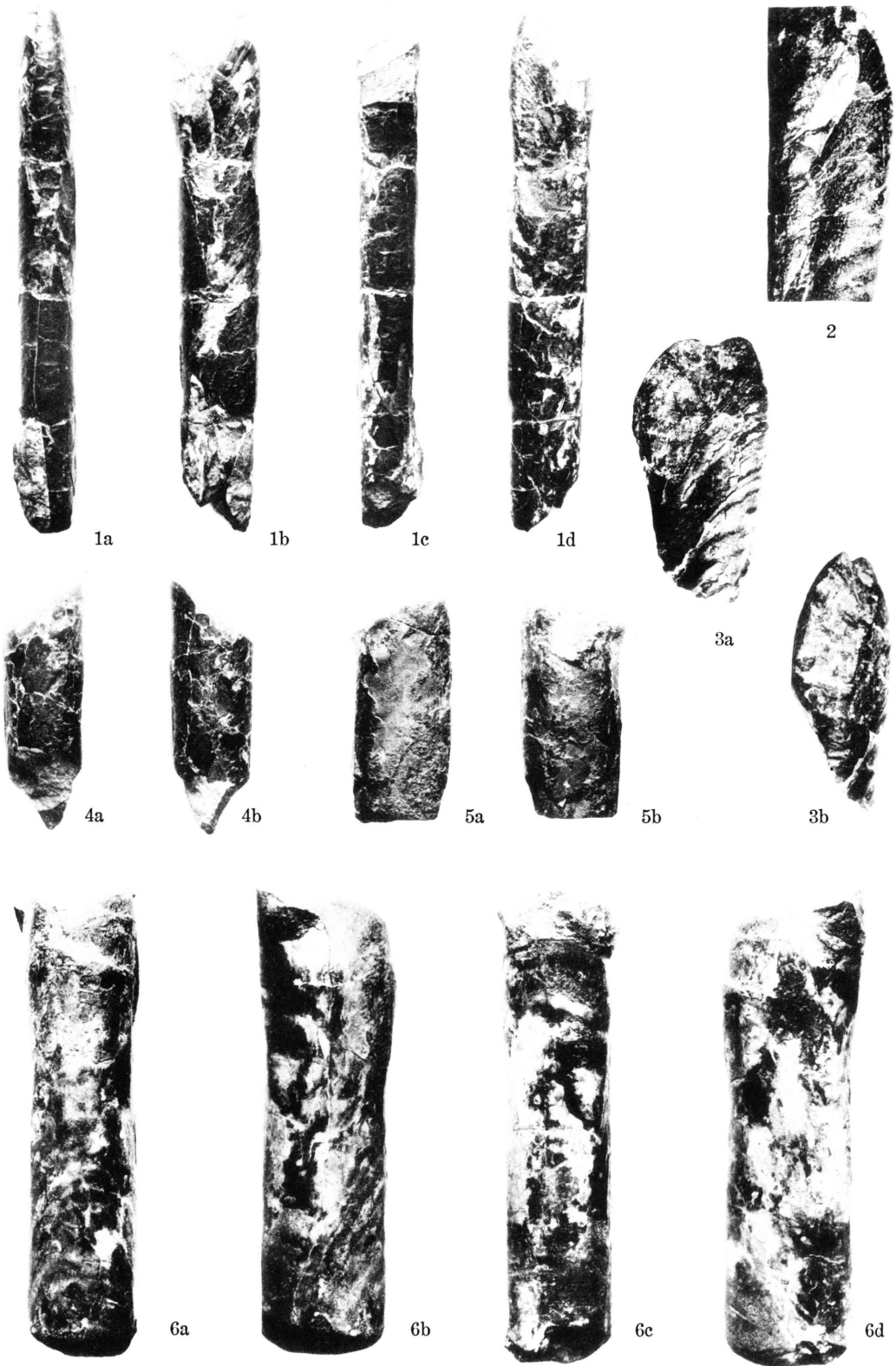
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# Plate 11

## Explanation of Plate 11

- Fig. 1. *Baculites yokoyamai* TOKUNAGA and SHIMIZU ..... Page 30  
Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . GK. H4534, a body chamber with a well preserved aperture, from loc. Mu2415, unit IIIb of the Upper Yezo group, along the Gonosawa, Pombets, a tributary of the Ikushumbets, Ishikari Province (Coll. T. MATSUMOTO).
- Figs. 2, 3. *Baculites undulatus* ROMAN and MAZERAN ..... Page 28
2. Lateral view of aperture,  $\times 2$ . A specimen, GK. H4389, from loc. Ik1181, upper part of IIIa, lower part of the Upper Yezo group, Ikushumbets Valley, Ishikari Province (Coll. T. MATSUMOTO).
3. Lateral (a) and dorso-lateral (b) views of aperture,  $\times 2$ . Another specimen, GK. H4415, from loc. Ik1181, the same locality as above (Coll. T. MATSUMOTO).
- Figs. 4, 5. *Baculites yokoyamai* TOKUNAGA and SHIMIZU ..... Page 30
4. Two lateral views (a, b),  $\times 1.4$ . An example, GK. H4539, from loc. Ik965b, along the main stream of the Ikushumbets, IIIb of the Upper Yezo group, Ishikari Province (Coll. T. MATSUMOTO). There are faint crescentic dorso-lateral tubercles on one side of the shell.
5. Two lateral views (a, b),  $\times 1.4$ . An example, GK. H4538, from loc. Ik966d, along the main stream of the Ikushumbets, IIIb of the Upper Yezo group, Ishikari Province (Coll. T. MATSUMOTO). There are faint crescentic dorso-lateral tubercles on one side of the shell (5a).
- Fig. 6. *Sciponoceras intermedium* sp. nov. .... Page 24  
Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . One of the paratypes, GK. H4372, from loc. Ik2014d, bed IIIa, nearly basal part of the Upper Yezo group in the section along the Pombets, a tributary of the Ikushumbets, Ishikari Province. A part of apertural margin is shown (b, c) (Coll. T. OMORI).

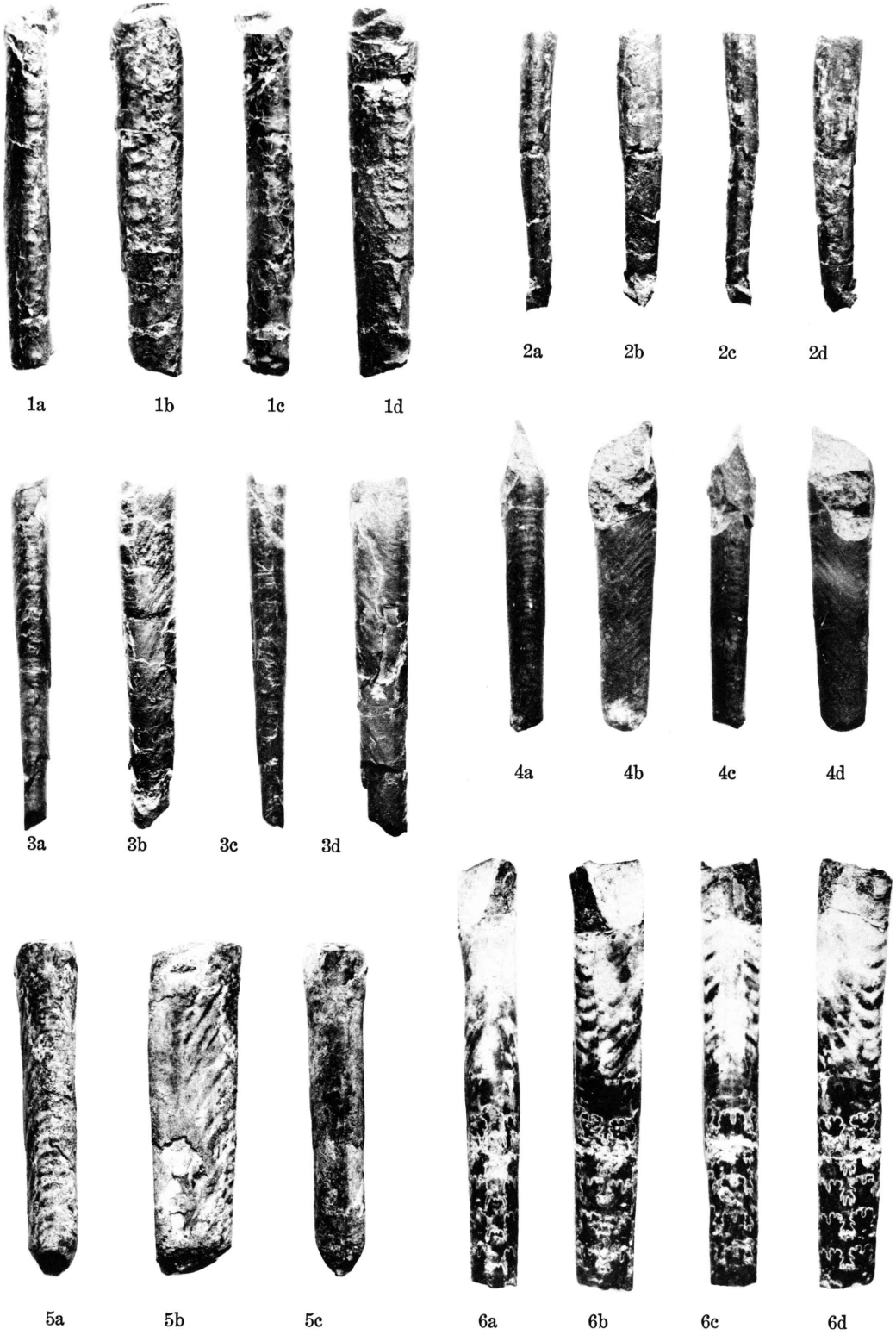


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## Plate 12

## Explanation of Plate 12

- Figs. 1, 2. *Baculites schencki* MATSUMOTO ..... Page 38
1. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . An example, GK. H4277, from loc. Mu1959, a boulder in the Pombets, a tributary of the Ikushumbets, Ishikari Province (Coll. T. MATSUMOTO).
  2. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . An example, GK. H4278, from loc. Yb64p2, basal part of the Upper Yezo group in the Hatonosu Hills, Yubari City (Coll. M. HARADA).
- Fig. 3. *Baculites yokoyamai* TOKUNAGA and SHIMIZU ..... Page 30
- Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . An example, GK. H4573, from loc. Ik1108p, along the Bannosawa, a tributary of the Ikushumbets, IIIb in the Upper Yezo group, Ishikari Province (Coll. T. MATSUMOTO).
- Figs. 4, 5. *Sciponoceras intermedium* sp. nov. .... Page 24
4. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . One of the paratypes, GK. H4426, from loc. Ik940, bed IIIa, subzone of *Reesidites minimus*, main course of the Ikushumbets, Ishikari Province (Coll. T. MATSUMOTO).
  5. Ventral (a), lateral (b) and dorsal (c) views,  $\times 1$ . One of the paratypes, GK. H4369, from loc. Ik2014d, bed IIIa near the basal part of the Upper Yezo group in the section along the Pombets, a tributary of the Ikushumbets, Ishikari Province (Coll. T. MATSUMOTO).
- Fig. 6. *Baculites* sp. nov. (?) aff. *sulcatus* BAILY ..... Page 46
- Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.8$ . A small but well preserved specimen, GK. H4702, from loc. T1020p1, a pebble in Saku-gakkozawa, Abeshinai-Saku area, Teshio Province (Coll. T. MATSUMOTO).



## Plate 13

## Explanation of Plate 13

- Figs. 1, 2. *Baculites princeps* sp. nov. .... Page 55
1. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . Holotype, GK. H4454, from loc. Y420, Kotodono-sawa, Haboro Valley, TANAKA's member U3, Sankei quadrangle, Teshio Province (Coll. S. YAMAGUCHI).
  2. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.2$ . One of the paratypes, GK. H4460, from the same nodule as the holotype (Fig. 1) (Coll. S. YAMAGUCHI).
- Fig. 3. *Baculites boulei* COLLIGNON. .... Page 43
- Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . An example, GK. H4256, from loc. Sk69 [=Y558], main stream of the Haboro, middle part of TANAKA's member U3 of the Upper Yezo group, K5 $\beta$ , Sankei quadrangle, Teshio Province (Coll. K. TANAKA and S. YAMAGUCHI).
- Fig. 4. *Baculites tanakae* sp. nov. .... Page 51
- Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.8$ . One of the paratypes, GK. H4242, from loc. Sk60, main stream of the Haboro, uppermost part of the Upper Yezo group, Sankei quadrangle (Chikubetsu area), Teshio Province (Coll. K. TANAKA).
- Fig. 5. *Baculites boulei* COLLIGNON. .... Page 43
- Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.4$ . An example, GK. H4254 from loc. Sk69 [=Y558], the same locality as GK. H4256 (Fig. 3) (Coll. K. TANAKA and S. YAMAGUCHI).



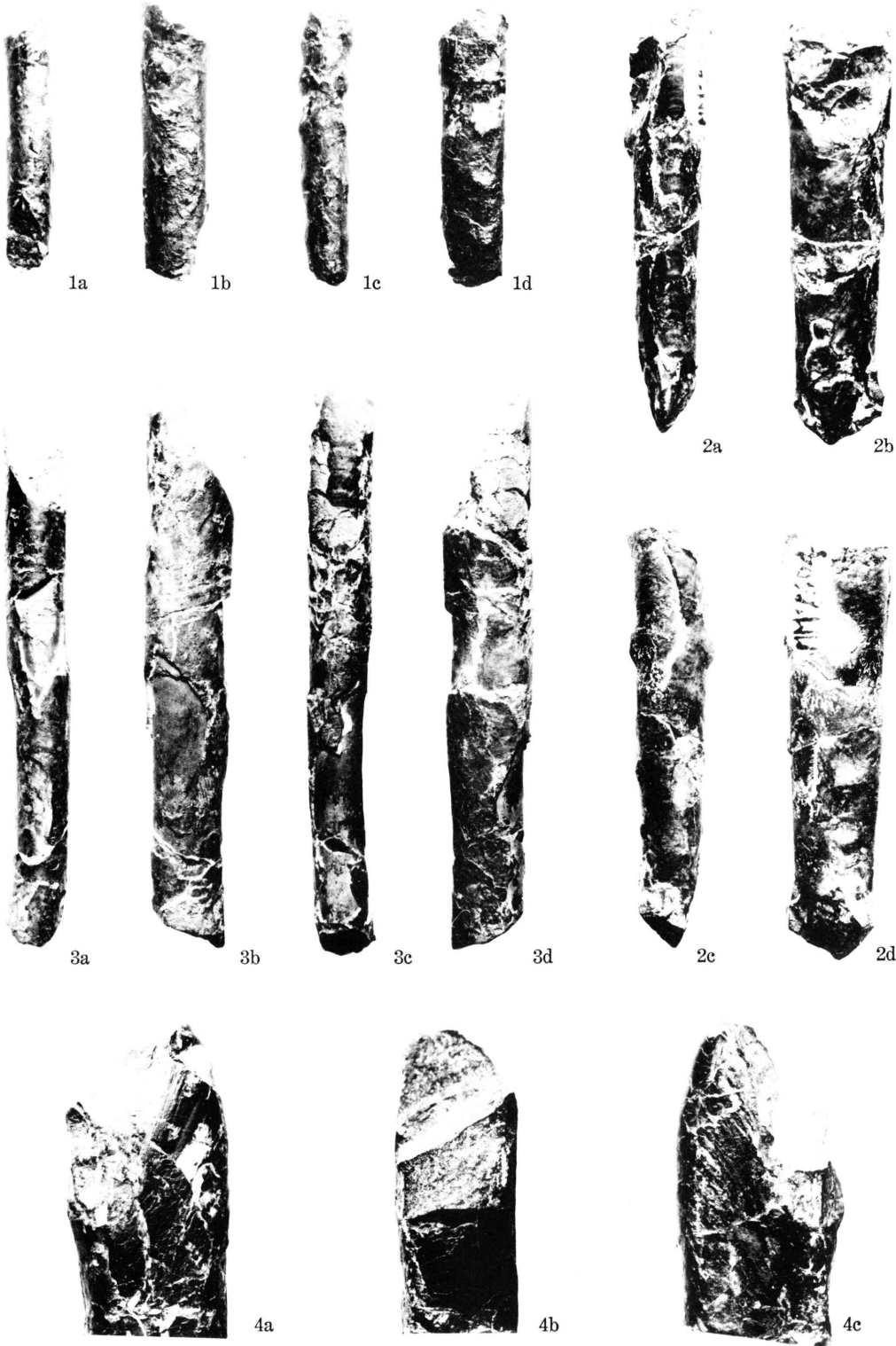


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# Plate 14

## Explanation of Plate 14

- Fig. 1. *Baculites schencki* MATSUMOTO ..... Page 38  
Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.6$ . An example, GK. H4276, from loc. Mu6322, Gonosawa, Pombets, a tributary of the Ikushumbets, bed IIIb in the Upper Yezo group (Coll. T. MURAMOTO).
- Fig. 2. *Baculites capensis* WOODS ..... Page 47  
Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . GT. I-326 (=MM-7604), from the Shisanushibe, a tributary of Popets [=Hobetsu], "Parapachydiscus beds", i.e. the zone of *Anapachydiscus* spp., Iburi Province (Coll. H. YABE).
- Fig. 3. *Baculites pseudobaculus* sp. nov. .... Page 68  
Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . Holotype, GK. H-4803, from loc. CK54, Sankebetsu, a branch of the Chikubetsu, member B2 of the Upper Yezo group on the western wing of the Chikubetsu anticline, Teshio Province (Coll. Y. UEDA).
- Fig. 4. *Baculites yokoyamai* TOKUNAGA and SHIMIZU ..... Page 30  
Two lateral (a, c) and dorsal (b) views,  $\times 1.8$ . A body chamber with a well preserved aperture, GK. H4534, from loc. Mu2415, Bannosawa, a tributary of the Ikushumbets, IIIb in the Upper Yezo group, Ishikari Province (Coll. T. MURAMOTO).

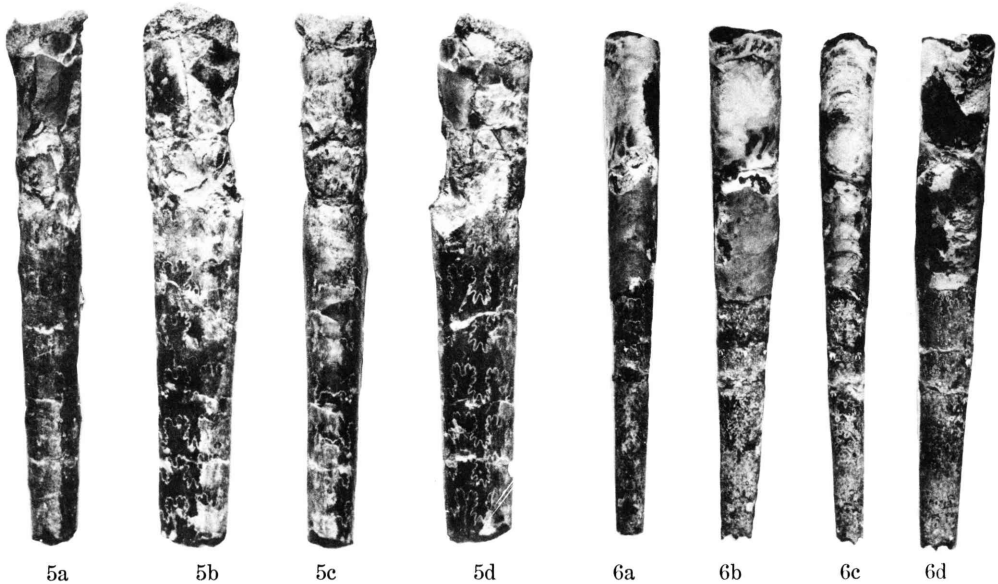
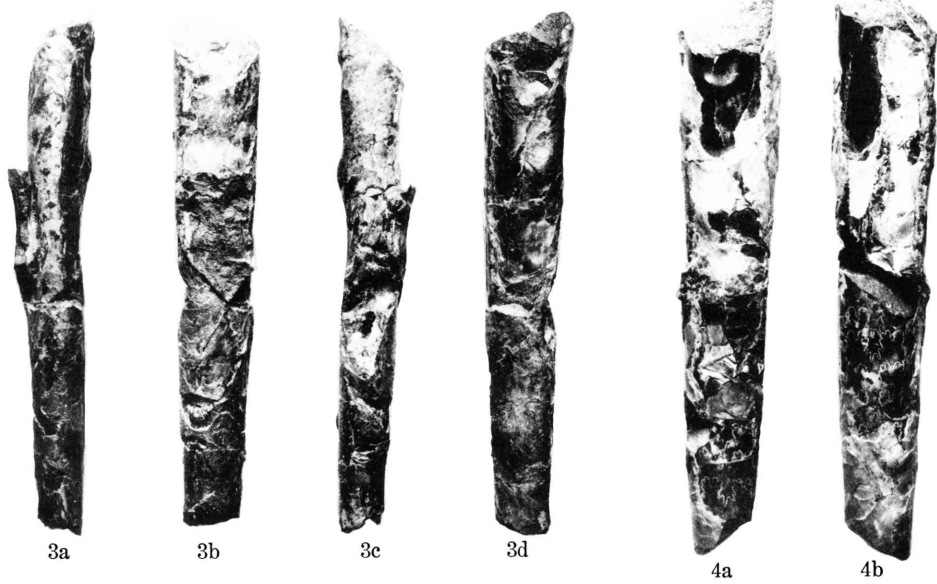
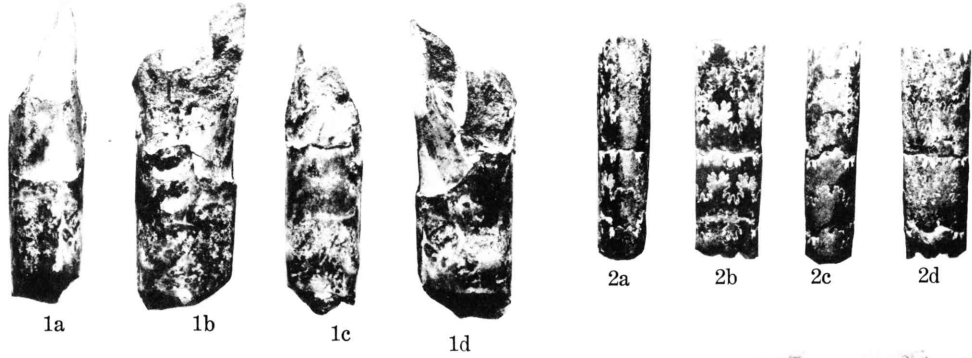


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## Plate 15

## Explanation of Plate 15

- Figs. 1, 2. *Baculites princeps* sp. nov..... Page 55
1. Dorsal (a), two lateral (b, c) and ventral (d) views,  $\times 1.2$ . One of the paratypes, GK. H4453, loc. Y420, Kotodono-sawa, Haboro Valley, TANAKA's member U3, Sankei quadrangle, Teshio Province (Coll. S. YAMAGUCHI).
  2. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.4$ . One of the paratypes, GK. H4456, from the same nodule as GK. H4453 (Fig. 1), loc. Y420 (Coll. S. YAMAGUCHI).
- Figs. 3-5. *Baculites capensis* WOODS ..... Page 47
3. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . An example, GK. H4730, from loc. T1164p4, upper reaches of the Saku-gakko-zawa, derived from bed III d of the Upper Yezo group in the Abeshinai-Saku area, Teshio Province (Coll. T. MATSUMOTO).
  4. Two lateral (a, b) views,  $\times 1.6$ . An example, GK. H4709, from loc. T-1187p2, upper reach of the Saku-gakko-zawa, derived from bed III d of the Upper Yezo group in the Abeshinai-Saku area, Teshio Province (Coll. T. MATSUMOTO).
  5. Dorsal (a), two lateral (b, d) and ventral (c) views,  $\times 1.6$ . An example, GK. H4736, from loc. T1151p, upper reaches of the Saku-gakko-zawa, derived from bed III d of the Upper Yezo group in the Abeshinai-Saku area, Teshio Province (Coll. T. MATSUMOTO).
- Fig. 6. *Baculites boulei* COLLIGNON..... Page 43
- Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.2$ . One of the paratypes, GK. H4270, from loc. Y443, along the Sakasa, a branch of the Haboro, middle part of TANAKA's member U3 of the Upper Yezo group, Sankei quadrangle, Teshio Province (Coll. S. YAMAGUCHI).

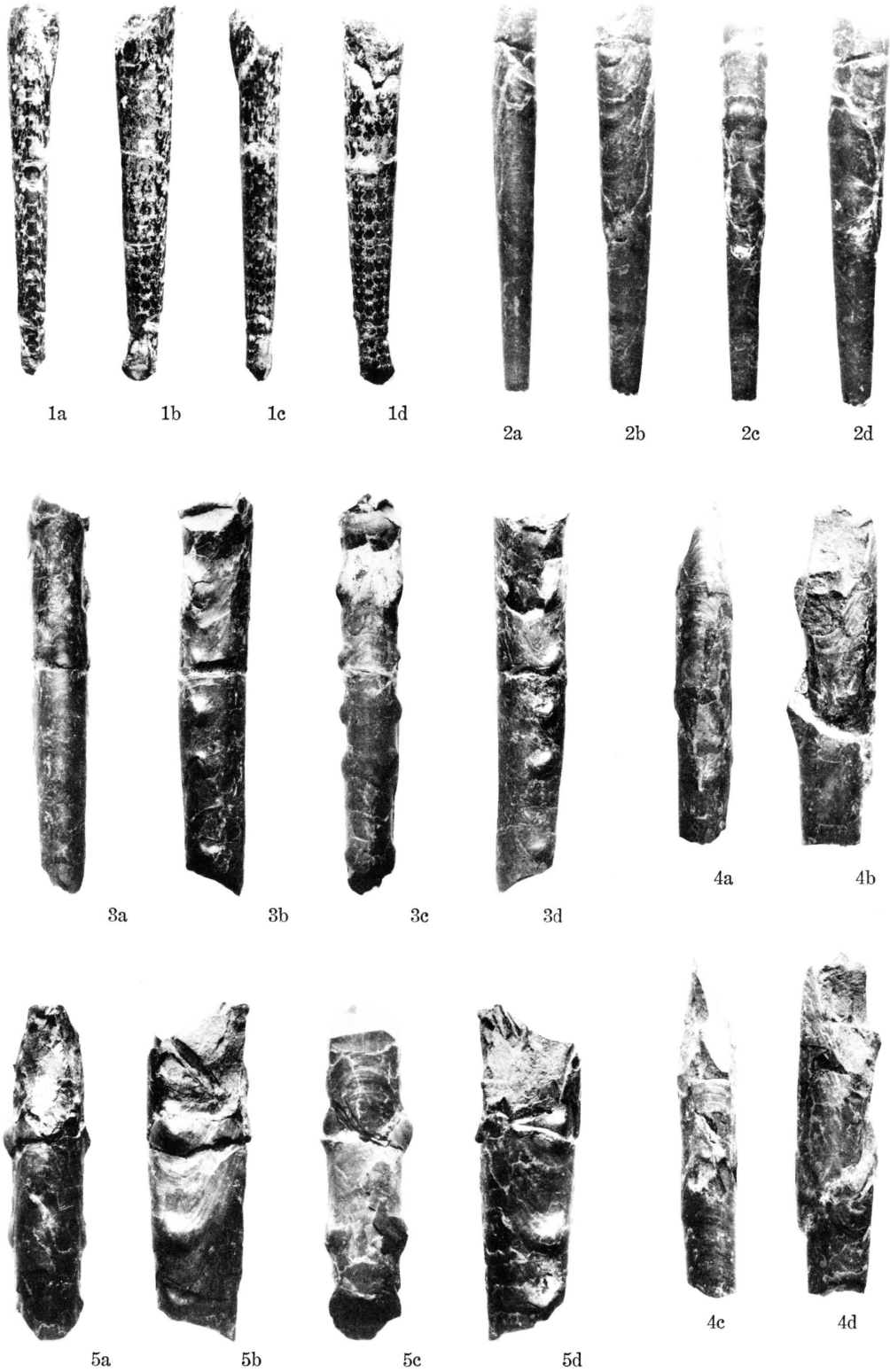


## Plate 16



## Explanation of Plate 16

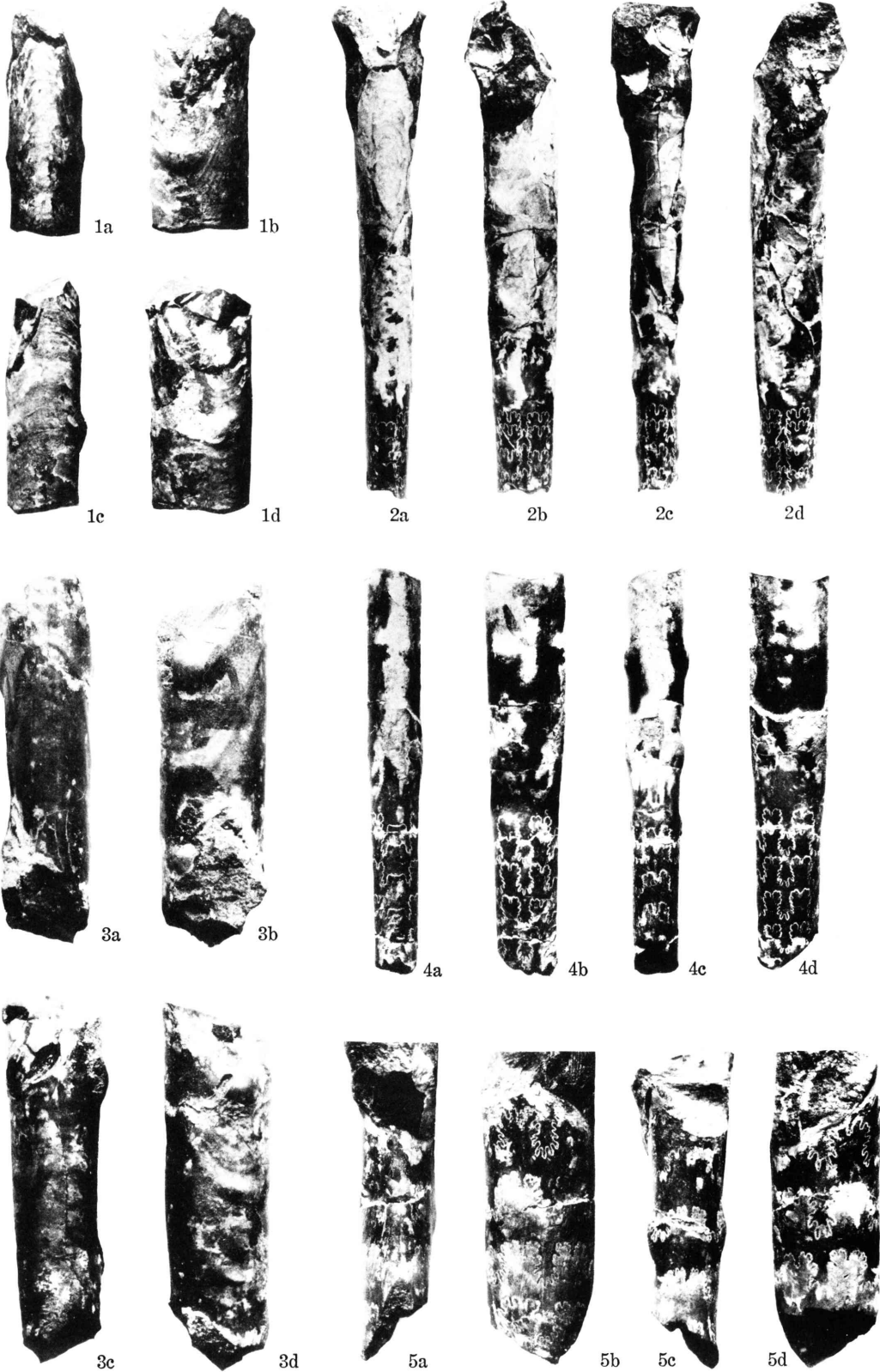
- Figs. 1-5. *Baculites tanakae* sp. nov..... Page 51
1. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.2$ . One of the paratypes, GK. H4236, from loc. Sk46, Haborogoe of the Kotanbetsu, member U6, uppermost part of the Upper Yezo group, Sankei-Chikubetsu area, Teshio Province (Coll. K. TANAKA)
  2. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.6$ . One of the paratypes, GK. H4776, from loc. T1186p1, upper reaches of Saku-gakkozawa, probably from bed IIIId-e in Abeshinai-Saku area, Teshio Province (Coll. T. MATSUMOTO).
  3. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.3$ . One of the paratypes, GK. H4753, from loc. T1186p1, the same locality as above (Fig. 2) (Coll. T. MATSUMOTO).
  4. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 2$ . One of the paratypes, GK. H4772, from loc. T1186p1, the same locality as above (Fig. 2, 3). Apertural margin is shown (b, c). (Coll. T. MATSUMOTO).
  5. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.6$ . One of the paratypes, GK. H4773, from loc. T1186p1, the same locality as above (Figs. 2-4) (Coll. T. MATSUMOTO).



## Plate 17

## Explanation of Plate 17

- Figs. 1-5. *Baculites tanakae* sp. nov..... Page 51
1. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 2$ . One of the paratypes, GK. H5115h, Hokkaido, without precise locality records, purchased from S. NAGAOKA.
  2. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . Holotype, GK. H4288, from loc. Sk60, main stream of the Haboro, member U6, the uppermost part of the Upper Yezo group, Sankei quadrangle (Chikubetsu-Haboro area), Teshio Province (Coll. K. TANAKA).
  3. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.6$ . One of the paratypes, GK. H4253, from loc. Sk46, Haborogoe of the Kotanbetsu, member U6, uppermost part of the Upper Yezo group, Sankei quadrangle (Chikubetsu-Haboro area), Teshio Province (Coll. K. TANAKA).
  4. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.2$ . One of the paratypes, GK. H4238, from loc. Sk46, the same locality as above (Fig. 3) (Coll. K. TANAKA).
  5. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.8$ . One of the paratypes, GK. H4232, from the same nodule as the holotype (Fig. 2) (Coll. K. TANAKA).



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# Plate 18

## Explanation of Plate 18

- Fig. 1. *Baculites tanakae* sp. nov. .... Page 51  
Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.2$ . One of the paratypes, GK. H4230, from loc. Sk60, main stream of the Haboro, member U6, uppermost part of the Upper Yezo group, Sankei quadrangle (Chikubetsu-Haboro area), Teshio Province (Coll. K. TANAKA).
- Fig. 2. *Baculites* cf. *kirki* MATSUMOTO ..... Page 65  
Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . A specimen, GK. H5393, from loc. Kd905p, Matsuishi-zawa, a western branch in the upper reaches of the Porokeshomap, a tributary of the Sharu, about 4 km. northwest of Furenai, derived from unit B (mudstone) of the Upper Yezo group, Hidaka Province (Coll. H. KIDO).
- Figs. 3, 4. *Baculites tanakae* sp. nov. .... Page 51
3. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.4$ . One of the paratypes, GK. H4229, from loc. Sk60, the same nodule as GK. H4230 (Fig. 1) (Coll. K. TANAKA).
  4. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.2$ . One of the paratypes, GK. H4252, from loc. Sk46, Haborogoe of the Kotanbetsu, member U6, uppermost part of the Upper Yezo group in the Sankei quadrangle (Chikubetsu area), Teshio Province (Coll. K. TANAKA).



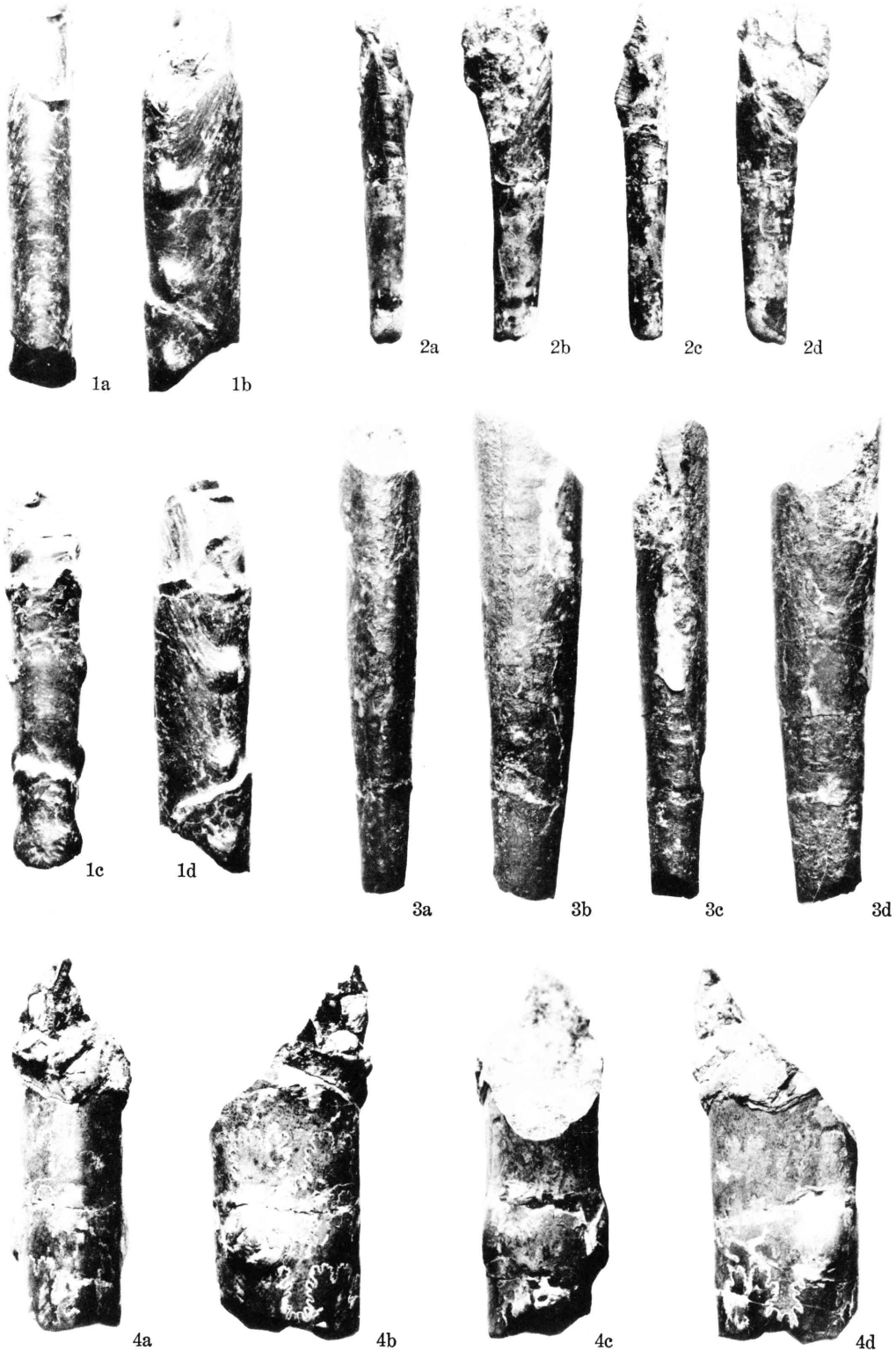
T. MATSUMOTO and I. OBATA: Baculitidae from Hokkaido



## Plate 19

## Explanation of Plate 19

- Fig. 1. *Baculites tanakae* sp. nov. .... Page 51  
Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.6$ . One of the paratypes, GK. H4754, from loc. T1186p1, upper reaches of Saku-gakko-zawa, probably derived from bed III d-e, Abeshinai-Saku area, Teshio Province (Coll. T. MATSUMOTO).
- Fig. 2. *Baculites capensis* WOODS .... Page 47  
Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 2$ . An example which shows aperture, GK. H4733, from loc. T1164p4, upper reaches of the Saku-gakko-zawa, derived from bed III d of the Upper Yezo group, Abeshinai-Saku area, Teshio Province (Coll. T. MATSUMOTO).
- Fig. 3. *Baculites rex* ANDERSON .... Page 64  
Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.6$ . A septate specimen, GK. H4737, from loc. IA-165, a small branch of the Heitaro-zawa, Nakatombets, Kitami Province (Coll. A. INOMA).
- Fig. 4. *Baculites tanakae* sp. nov. .... Page 51  
Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 2$ . One of the paratypes, GK. H4231, from loc. Sk60, main stream of the Haboro, member U6, uppermost part of the Upper Yezo group, Sankei quadrangle (Chikubetsu-Haboro area), Teshio Province (Coll. K. TANAKA).

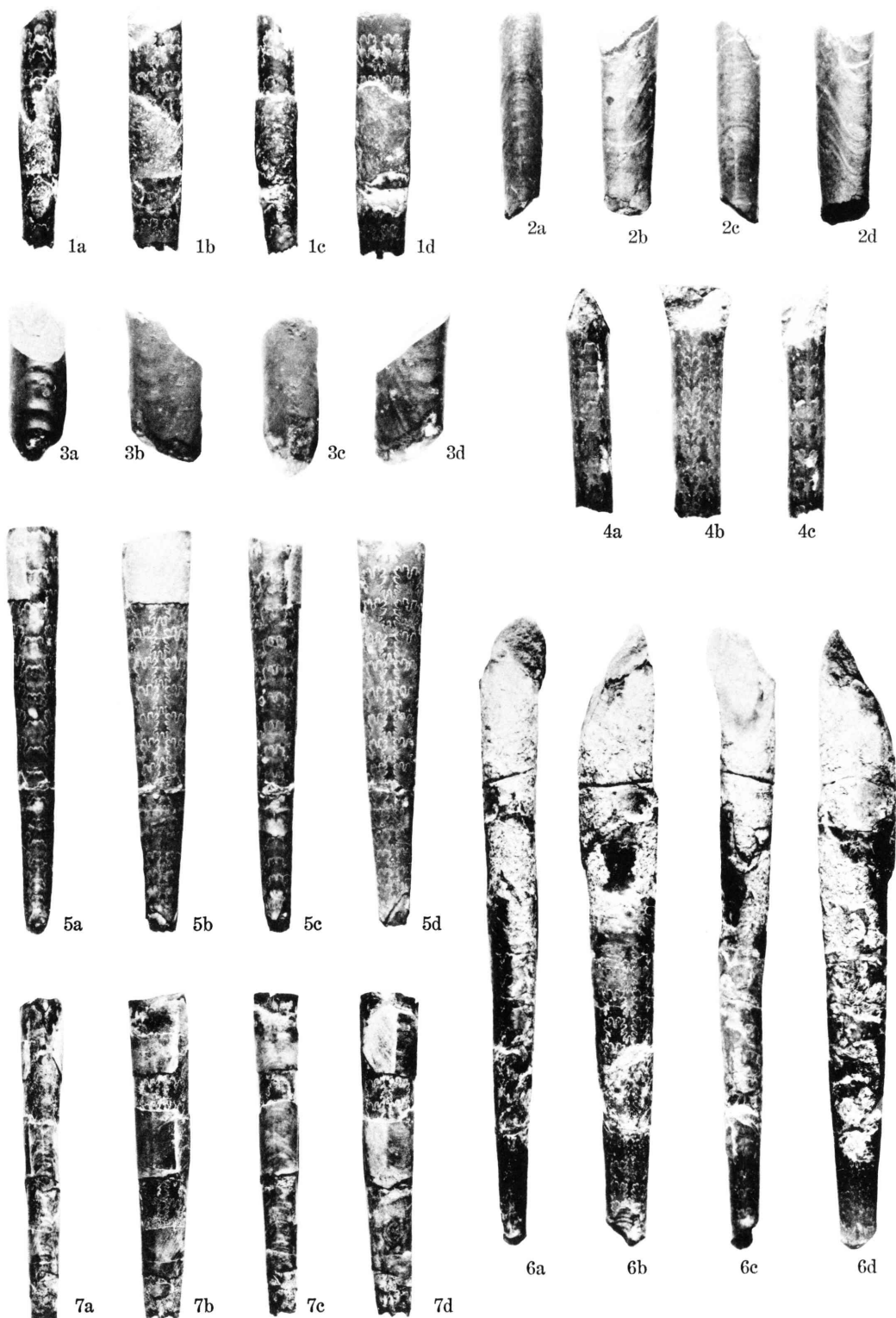


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## Plate 20

## Explanation of Plate 20

- Figs. 1, 2. *Baculites bailyi* WOODS..... Page 35
1. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.2$ . An example, GK. H4515, from loc. Y441, upper part of member U3 of the Upper Yezo group, the Sakasa river, a tributary of the Haboro, Sankei quadrangle, Teshio Province (Coll. S. YAMAGUCHI).
  2. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.6$ . An example, GK. H4520, from loc. 073004, along a branch of the Chikubetsu near the Chikubetsu coal mine, Teshio Province (Coll. Y. KINO).
- Fig. 3. *Baculites anceps pacificus* subsp. nov. .... Page 59
- Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . One of the paratypes, GK. H3555, from loc. U238, Nishihorobetsu, bed Ur. 5 $\beta$ , zone of *Inoceramus schmidti*, Urakawa area, Hidaka Province (Coll. T. MATSUMOTO).
- Fig. 4. *Baculites* sp. nov. (?) aff. *hochstetteri* LIEBUS ..... Page 63
- Ventral (a), lateral (b) and dorsal (c) views,  $\times 1$ . A specimen, GK. H3554, from loc. U47, upper reaches of the Urakawa Valley, bed Ur4 $\beta$ , Hidaka Province (Coll. T. MATSUMOTO).
- Figs. 5-7. *Baculites uedae* sp. nov. .... Page 40
5. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 2$ . One of the paratypes, GK. H4793, from loc. CK75, along the main stream of the Detofutamata river, member B1, Chikubetsu area, Teshio Province (Coll. Y. UEDA).
  6. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . Holotype, GK. H4794, from loc. CK64, the main stream of the Detofutamata river, member B1, Chikubetsu area, Teshio Province (Coll. Y. UEDA).
  7. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . One of the paratypes, GT. I-3584, from loc. T311, the Wakkawembets river, bed III d, Abeshinai Valley, Teshio Province (Coll. T. MATSUMOTO).

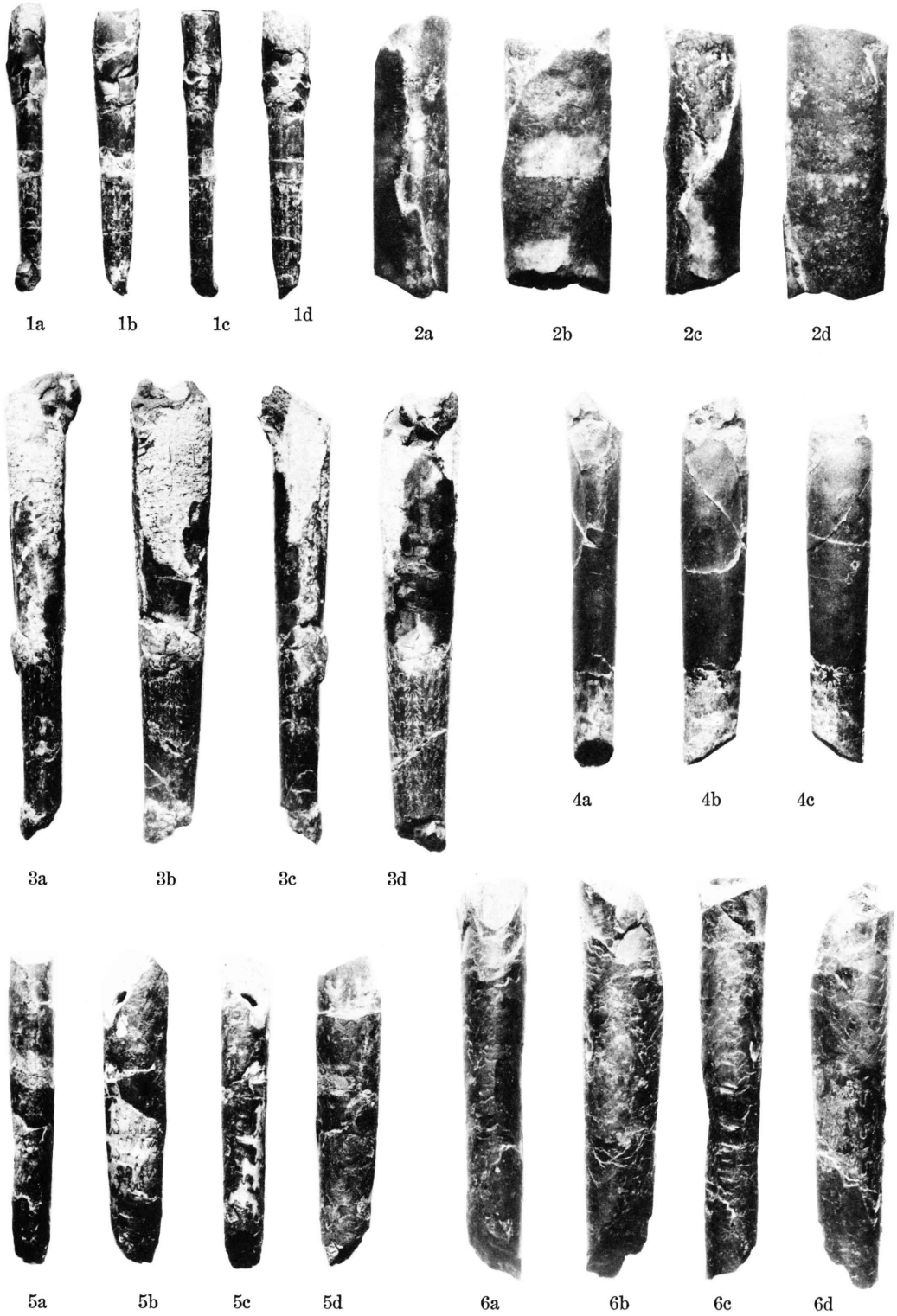


## Plate 21

## Explanation of Plate 21

- Fig. 1. *Baculites uedae* sp. nov. .... Page 40  
Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . One of the paratypes, GK. H4479, from loc. Y531, middle part of unit U3, Kotan-zawa, Harboro Valley, Teshio Province (Coll. S. YAMAGUCHI).
- Fig. 2. *Baculites chicoensis* TRASK ..... Page 66  
Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.8$ . An example, GK. H4704, from loc. S-164, Itaya, Kyowa quadrangle, in the upper reaches of the Abeshinai, Teshio Province (Coll. NAGASAKA).
- Fig. 3. *Baculites uedae* sp. nov. .... Page 40  
Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . One of the paratypes, GK. H4825, from loc. CK64, the main stream of the Detofutamata river, Chikubetsu area, Teshio Province (Coll. Y. UEDA).
- Fig. 4. *Baculites chicoensis* TRASK ..... Page 66  
Ventral (a) and two lateral (b, c) views,  $\times 1.4$ . An example, GK. H4703, from loc. S-164, Itaya, Kyowa quadrangle, in the upper reaches of the Abeshinai, Teshio Province (Coll. NAGASAKA).
- Fig. 5. *Baculites bailyi* WOODS..... Page 35  
Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . An unusual example, GK. H4810, from loc. CK61, Detofutamata river, member B1, zone of *Inoceramus amakusensis*, in the Chikubetsu area, Teshio Province (Coll. Y. UEDA).
- Fig. 6. *Baculites uedae* sp. nov. .... Page 40  
Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.6$ . One of the paratypes, GK. H4708, from loc. T1187p2, Saku-gakko-zawa, from bed IIIId in the Abeshinai Valley, Teshio Province (Coll. T. MATSUMOTO).





Ikuwo OBATA and Tatsuro MATSUMOTO

Some Baculitids from Honshu

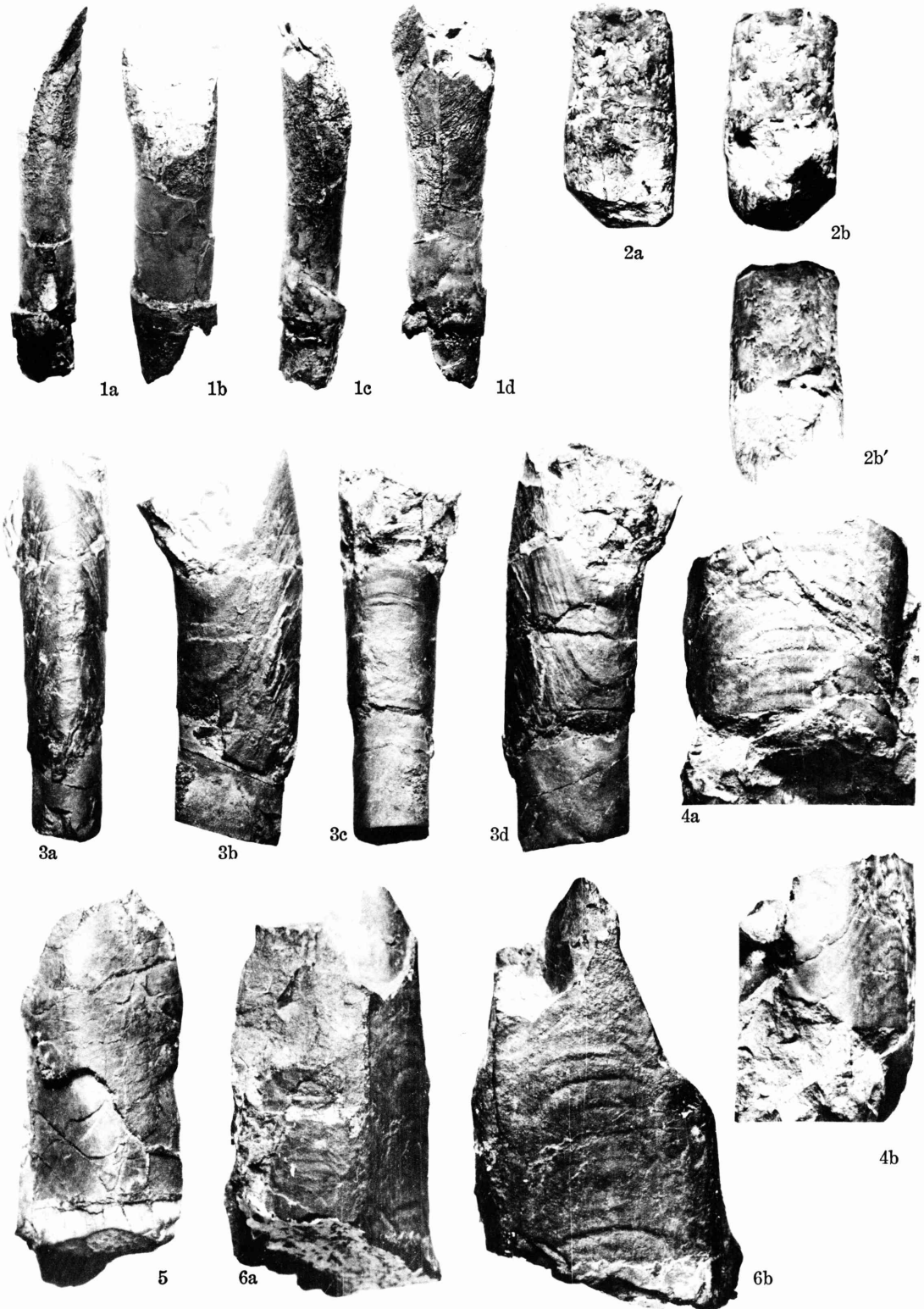
(A Monograph of the Baculitidae from Japan — Part II)

**Plates 22–27**

## Plate 22

## Explanation of Plate 22

- Fig. 1. *Baculites inornatus* MEEK ..... Page 78  
Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . An example, GK. H5362, from loc. 610507-4, upper part of the Shichi shale member, about 700 m. E. S. E. of Okubo, Mihara-machi, Mihara-gun, Awaji Island, Hyogo Prefecture (Coll. K. ICHIKAWA and Y. MAEDA).
- Fig. 2. *Baculites* cf. *princeps* MATSUMOTO and OBATA ..... Page 80  
Two lateral (a, b, b') views,  $\times 2$ . A specimen, GK. H5300, from loc. T101, south of Gyojamatsu, upper part of the lower sandstone member of the Futakawa formation, Iwakura-mura, Arita-gun, Wakayama Prefecture (Coll. K. TANAKA.)
- Figs. 3-6. *Baculites regina* sp. nov. .... Page 85
3. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.6$ . One of the paratypes, GT. I-574 [=MM7715]a, from the Azenotani shale member, at Kuratani, Shinke-mura, Sennan-gun, Osaka Prefecture (Coll. T. KOBAYASHI).
  4. Dorsal (a) and dorso-lateral (b) views,  $\times 1.6$ . One of the paratypes, GT. I-578 [=MM7718]b, from the same locality as above (Coll. T. KOBAYASHI).
  5. Dorsolateral view,  $\times 1.6$ . One of the paratypes, GT. I-575 [=MM7716]c, from the same locality as above (Coll. T. KOBAYASHI).
  6. Dorsolateral (a) and dorsal (b) views,  $\times 1.6$ . One of the paratypes, GT. I-578 [=MM7718]a, from the same locality as above (Coll. T. KOBAYASHI).



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## Plate 23

### Explanation of Plate 23

- Figs. 1, 2. *Baculites regina* sp. nov. . . . . . Page 85
1. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.6$ . One of the paratypes, GT. I-575 (=MM7716)a, from the Azenotani shale member, at Kuratani, Shinke-mura, Sennan-gun, Osaka Prefecture (Coll. T. KOBAYASHI).
  2. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.6$ . One of the paratypes, GK. H5292, from loc. KK1149, Mutsuo, Shindachi-machi, lower part of the Azenotani shale member, Osaka Prefecture (Coll. K. TANAKA).
- Fig. 3. *Baculites occidentalis* MEEK . . . . . Page 82
- Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 2$ . An example, GK. H4900, from loc. TN11' of half way up, on the northeast of the Toyajo Hills, the silty fine-grained sandstone member of Toyajo formation, Aritagawa Valley, Wakayama Prefecture (Coll. I. OBATA).



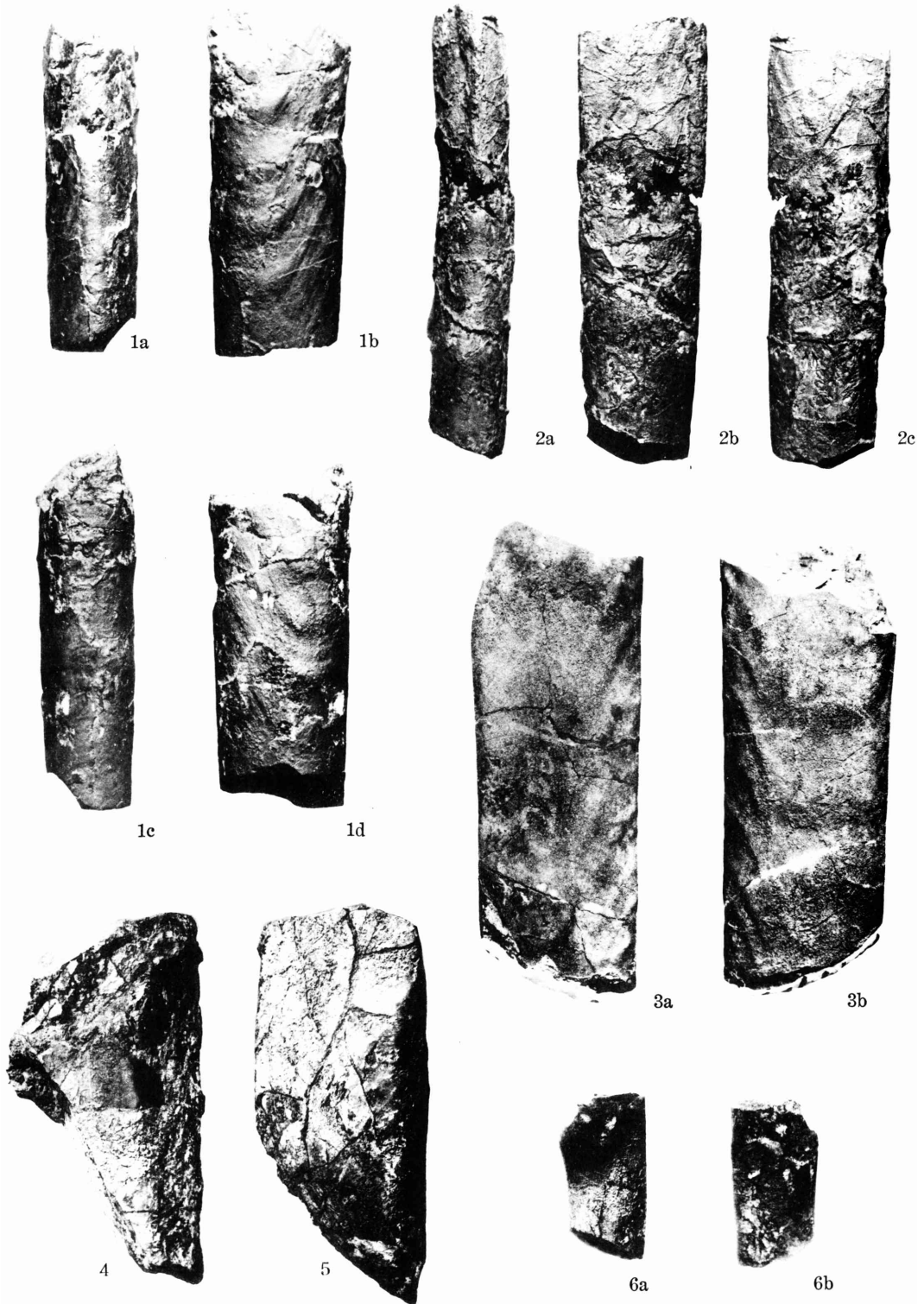
I. OBATA and T. MATSUMOTO: Baculitids from Honshu



## Plate 24

## Explanation of Plate 24

- Figs. 1-5. *Baculites regina* sp. nov. .... Page 85
1. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.6$ . Holotype, GT. I-575 [=MM7716]b, from the Azenotani shale member, at Kuratani, Shinke-mura, Sennan-gun, Osaka Prefecture (Coll. T. KOBAYASHI).
  2. Ventral (a) and two lateral (b, c) views,  $\times 1.6$ . One of the paratypes, GK. H5274, from loc. Az13, Azenotani, lower part of the Azenotani shale member, Wakayama Prefecture (Coll. I. OBATA).
  3. Two lateral (a, b) views,  $\times 1.6$ . One of the paratypes, GT. I-580 (=MM 7719), from the Azenotani shale member, at Takinoike, Izumi-Sano City, Osaka Prefecture (Coll. T. KOBAYASHI).
  4. Dorsolateral view,  $\times 1$ . One of the paratypes, GK. H5269, from loc. Az12, the same locality as above (Coll. I. OBATA).
  5. Lateral view,  $\times 1$ . One of the paratypes, GK. H5268, from loc. Az12, Azenotani, lower part of the Azenotani shale member, Wakayama Prefecture (Coll. I. OBATA).
- Fig. 6. *Baculites inornatus* MEEK .... Page 78
- Two lateral (a, b) views,  $\times 2$ . An example, which shows an aperture, GK. H5363, from loc. 610507-4, upper part of the Shichi shale member, about 700 m. E. S. E. of Okubo, Mihara-machi, Mihara-gun, Awaji Island, Hyogo Prefecture (Coll. K. ICHIKAWA and Y. MAEDA).



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## Plate 25

## Explanation of Plate 25

- Fig. 1. *Baculites occidentalis* MEEK..... Page 82  
Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.6$ . An example, GK. H4888, from the Toyajo formation, Wakayama Prefecture. The locality is not precisely recorded (Coll. Toyajo Middle School).
- Fig. 2. *Baculites* cf. *princeps* MATSUMOTO and OBATA ..... Page 80  
Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.8$ . A specimen, GK. H4909, from south of Gyōjamatsu, upper part of the lower sandstone member of the Futakawa formation, Iwakura-mura, Arita-gun, Wakayama Prefecture (Coll. I. OBATA). An aptychi is shown.
- Figs. 3-5. *Baculites regina* sp. nov. .... Page 85
3. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . One of the paratypes, GK. H4834 [=OCU. MM743], from loc. 148, Azenotani, Sennan-gun, Azenotani shale member, Osaka Prefecture (Coll. K. ICHIKAWA and Y. MAEDA).
  4. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . One of the paratypes, GK. H4835 [OCU. MM742a], from loc. 116, Takinoike, Izumi-Sano City, Azenotani shale member, Osaka Prefecture (Coll. K. ICHIKAWA and Y. MAEDA).
  5. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1$ . One of the paratypes, GK. H4836 [=OCU. MM742b], from loc. 116, the same locality as above (Coll. K. ICHIKAWA and Y. MAEDA).



1a



1b



1c



1d



2a



2b



2c



2d



3a



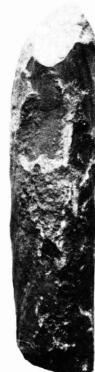
3b



3c



3d



5a



5b



4a



4b



4c



4d



5c



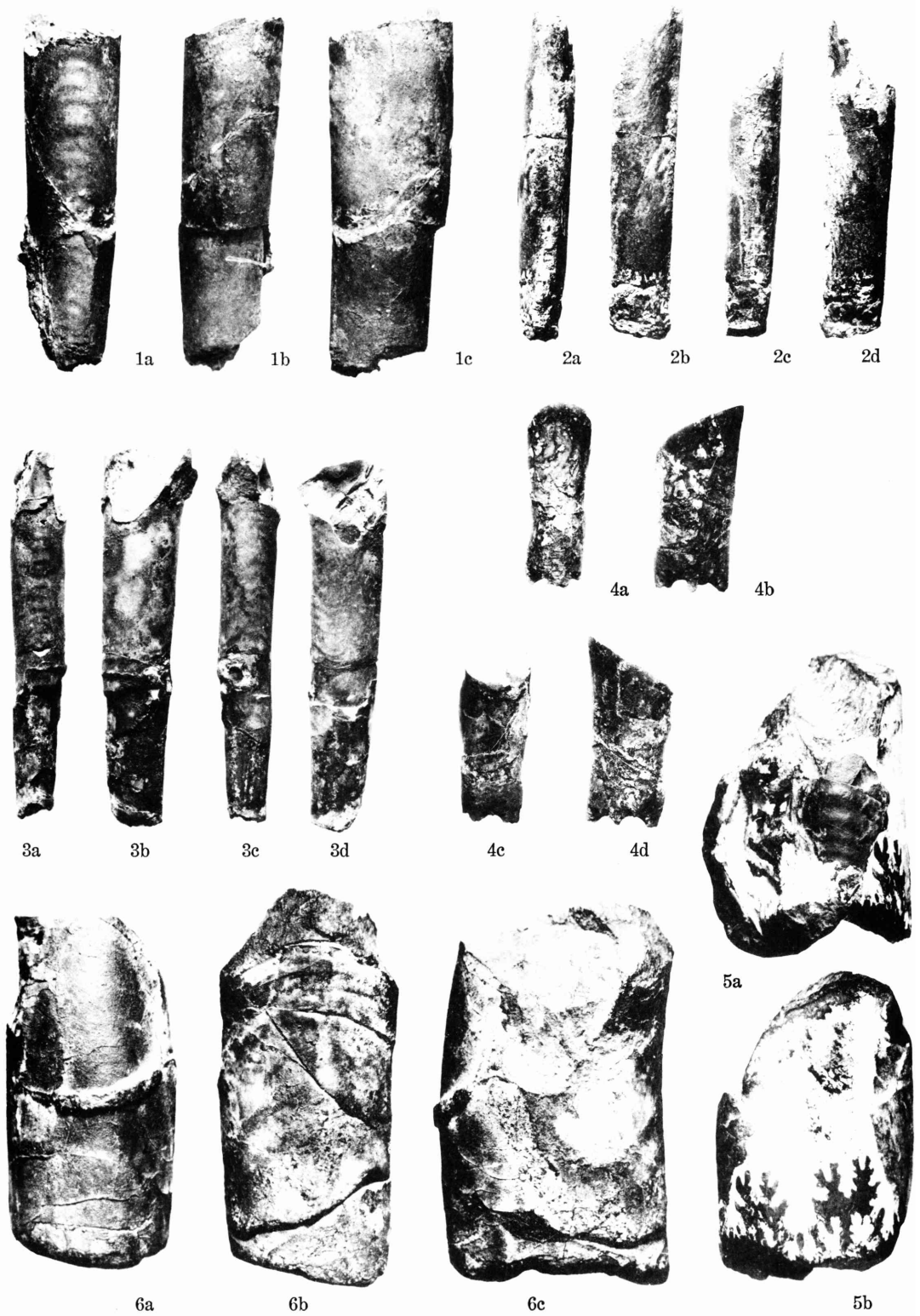
5d

## Plate 26

## Explanation of Plate 26

- Figs. 1-3. *Baculites occidentalis* MEEK ..... Page 82
1. Ventral (a), dorsal (b) and lateral (c) views,  $\times 2$ . An example, GK. H-5324, from loc. T930, southwest of the Toyajo Hills, in the silty fine-grained sandstone member of the Toyajo formation, Wakayama Prefecture (Coll. K. TANAKA).
  2. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.6$ . An example, GK. H4852, from the Toyajo formation, Wakayama Prefecture. The precise locality is not recorded (Coll. Toyajo Primary School).
  3. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.6$ . An example, GK. H4845, from the Toyajo formation, Wakayama Prefecture. The precise locality is not recorded (Coll. Toyajo Primary School).
- Figs. 4-6. *Baculites inornatus* MEEK ..... Page 78
4. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.2$ . An example, GK. H5361, from loc. 610507-4, upper part of the Shichi shale member, about 700 m. E. S. E. of Okubo, Mihara-machi, Mihara-gun, Awaji Island, Hyogo Prefecture (Coll. K. ICHIKAWA and Y. MAEDA).
  5. Ventral (a) and lateral (b) views,  $\times 1.6$ . An example, GT. I-654 [=MM 7471]a, from Tokuhara, Hirota-mura, Mihara-gun, Awaji Island, Shichi shale member, Hyogo Prefecture (Coll. H. SASAI).
  6. Ventral (a), dorsal (b) and lateral (c) views,  $\times 2$ . An example, GT. I-654 [=MM7471]b, from the same nodule as above (Coll. H. SASAI).



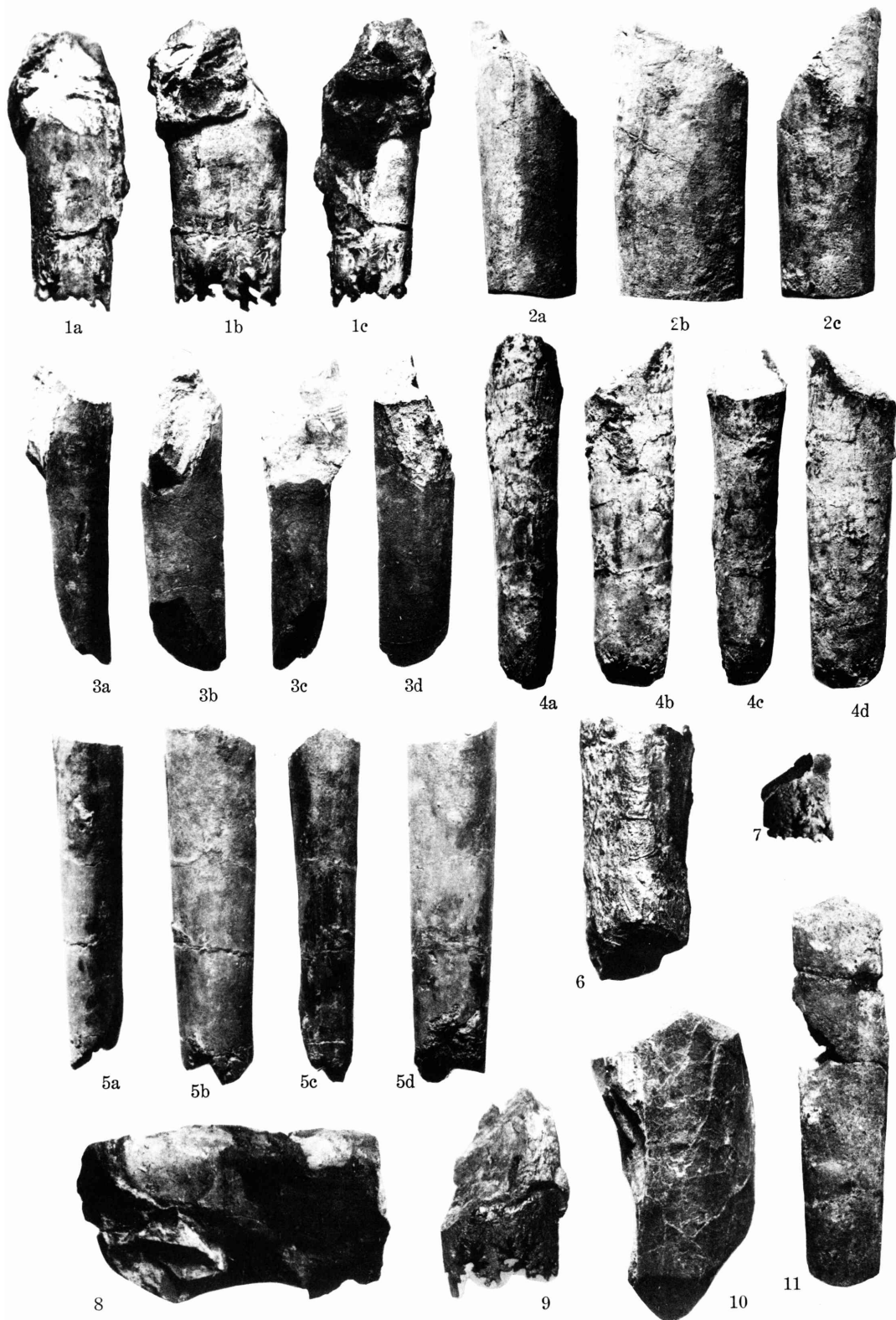


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## Plate 27

## Explanation of Plate 27

- Fig. 1. *Baculites regina* sp. nov. .... Page 85  
Ventral (a), lateral (b) and dorsal (c) views,  $\times 2$ . One of the paratypes, GK. H5270, from loc. KK1231, Hinenoiwakura, Izumi-Sano City, lower part of the Azenotani shale member, Osaka Prefecture (Coll. K. TANAKA).
- Figs. 2-5. *Baculites occidentalis* MEEK ..... Page 82
2. Ventral (a), lateral (b) and dorsal (c) views,  $\times 1.6$ . An example, GK. H-4891, from loc. TN11 of half way up, on the northeast of the Toyajo Hills, in the silty fine-grained sandstone member of the Toyajo formation (Coll. I. OBATA).
  3. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.6$ . An example, GK. H4863, from the Toyajo formation, Wakayama Prefecture. The precise locality is not recorded (Coll. Toyajo Middle School).
  4. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.6$ . An example from loc. TN10 of half way up, on the northeast of the Toyajo Hills, in the silty fine-grained sandstone member of the Toyajo formation (Coll. I. OBATA).
  5. Ventral (a), two lateral (b, d) and dorsal (c) views,  $\times 1.8$ . An example, GK. H4860, from the Toyajo formation, Wakayama Prefecture. The locality is not precisely recorded (Coll. Toyajo Primary School).
- Figs. 6, 7. *Baculites regina* sp. nov. .... Page 85
6. Ventral view,  $\times 2$ . One of the paratypes, GK. H5275, from loc. Az13, Azenotani, lower part of the Azenotani shale member, Sennan-gun, Osaka Prefecture (Coll. I. OBATA).
  7. Lateral view,  $\times 2$ . One of the paratypes, GK. H5294, from loc. Az11, Azenotani, lower part of the Azenotani shale member, Sennan-gun, Osaka Prefecture (Coll. I. OBATA).
- Fig. 8. *Baculites occidentalis* MEEK ..... Page 82  
Dorso-lateral view,  $\times 1.4$ . An example, GK. H4896, from loc. TN11' of half way up, on the northeast of the Toyajo Hills, in the silty fine-grained sandstone member of the Toyajo formation, Wakayama Prefecture (Coll. I. OBATA).
- Fig. 9. *Baculites regina* sp. nov. .... Page 85  
Lateral view,  $\times 2$ . One of the paratypes, GK. H5279, from loc. Az13, Azenotani, lower part of the Azenotani shale member, Sennan-gun, Osaka Prefecture (Coll. I. OBATA).
- Fig. 10. *Baculites* cf. *princeps* MATSUMOTO and OBATA ..... Page 80  
Lateral view,  $\times 2$ . A specimen, GK. H4908, from south of Gyōjamatsu, upper part of the lower sandstone member of the Futakawa formation, Iwakura-mura, Arita-gun Wakayama Prefecture (Coll. I. OBATA).
- Fig. 11. *Baculites* cf. *yokoyamai* TOKUNAGA and SHIMIZU ..... Page 76  
Lateral view,  $\times 1.6$ . A specimen, GK. H5271, from the Lower Futaba beds of Tokunaga and Shimizu, the lower reaches of Nagasone-zawa in Oriki, Hirono-mura, Fukushima Prefecture (Coll. I. OBATA).



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