



Fig. 21 *Trigonias*, species C, SMNH P1635.1, showing left I<sub>2</sub> and P<sub>1</sub> to incomplete M<sub>3</sub>, and right I<sub>1</sub>, I<sub>2</sub>, and P<sub>2</sub> to M<sub>3</sub>; occlusal view, × 0.75.

## DESCRIPTION

The teeth of the SMNH mandible are moderately worn, especially I<sub>1</sub>, I<sub>2</sub>, and M<sub>1</sub>. On the ROM specimen only M<sub>1</sub> shows appreciable wear. The latter mandible has the alveolar margin evenly rounded in front, reminiscent of *Hyracodon*, and the symphysis forming a shallow trough as far back as the midlength of P<sub>2</sub>. Turning to the SMNH jaw, its I<sub>1</sub> has a very long root, and a short, somewhat trenchant crown. It lies close to the midline of the jaw and to I<sub>2</sub>. The latter tooth is much larger and is tusk-like and prominent. I<sub>3</sub> is not preserved on either specimen, but the alveolus is crowded against that of I<sub>2</sub>. There is no trace of the canine, either as tooth or alveolus. The diastema between I<sub>3</sub> and P<sub>1</sub> is short on SMNH P1635.1, somewhat longer on ROM 11629.

P<sub>1</sub> is a small tooth, ovoid in outline, slightly flattened posteriorly. The crown has a long medial ridge, with a single cusp (= protoconid) at about midlength of tooth. Behind this the ridge is worn. P<sub>2</sub> has a submolariform trigonid and a molariform talonid; the crown tapers slightly anterad. P<sub>3</sub> is almost molariform, the characteristic LL pattern of the crests being well defined; as with P<sub>2</sub> the crown tapers somewhat anterad. P<sub>4</sub> is a little larger than P<sub>3</sub> and does not taper anterad; the protolophid is the highest part of the tooth and forms a transverse wall from protoconid to metaconid.

The first lower molar is similar to P<sub>4</sub> but a little larger. The L-shaped trigonid forms a sharp angle at the protoconid, between protolophid and metalophid, but the crest of the talonid is more rounded, and the position of the hypoconid is vague, whereas the entoconid is distinct, and almost as high as the metaconid. M<sub>2</sub> is almost identical with M<sub>1</sub>, but is less worn. M<sub>3</sub> is mostly below the alveolar rim on ROM 11629, and barely above the rim on SMNH P1635.1.

## MEASUREMENTS (in millimetres)

	<i>Length</i>	<i>Width</i>
SMNH P1635.1		
Right tooth row, from I <sub>1</sub> to M <sub>3</sub>	170.7	—
Right I <sub>1</sub> , crown	6.6	4.6
Right I <sub>2</sub> , crown	9.8	8.0
Left P <sub>1</sub>	8.8	5.3
Right P <sub>2</sub>	15.5	9.9
Right P <sub>3</sub>	17.2	11.8
Right P <sub>4</sub>	18.1	13.5
Right M <sub>1</sub>	23.2	15.1
Right M <sub>2</sub>	25.9	16.3
Right M <sub>3</sub>	—	13.2

## REMARKS

The dentition of these two lower jaws closely resembles that of *Trigonias osborni* as described and illustrated by Wood (1928); in particular, the large, procumbent I<sub>2</sub> and the small but distinct P<sub>1</sub> are similar. Gregory and Cook (1928:6) postulated that in *Trigonias* the I<sub>3</sub> was lost before the lower canine, but these specimens show the



Fig. 22 *Trigonias*, species C, ROM 11629, incomplete mandible, showing left P<sub>1</sub> to P<sub>4</sub> and right P<sub>1</sub> to M<sub>3</sub>; occlusal view, × 0.75.

alveolus for I<sub>3</sub> but no trace of the canine. In size the present specimens are only about two-thirds that of the corresponding parts in *T. osborni*. They probably represent an undescribed species, but in the absence of associated upper dentition they are not considered adequate for a specific definition.

### *Trigonias species D*

#### REFERRED SPECIMENS

SMNH P1119.1, portion of right mandibular ramus with part of symphysis, left I<sub>1</sub> and P<sub>1</sub>, right I<sub>1</sub>, P<sub>1</sub>, P<sub>2</sub>, incomplete P<sub>3</sub> and P<sub>4</sub>; Calf Creek. ROM 5921 (Fig. 23), incomplete right mandibular ramus with P<sub>3</sub> to M<sub>3</sub>; Hunter Quarry. ROM 23184 (Fig. 24), fragmentary right mandibular ramus with P<sub>3</sub>, DP<sub>4</sub>, P<sub>4</sub>, M<sub>1</sub> and M<sub>2</sub>; Hunter Quarry. ROM 23186 (Figs. 25, 26), left mandibular ramus and part of symphysis, with P<sub>2</sub> to M<sub>3</sub>; Hunter Quarry. ROM 23187, fragment of right mandibular ramus with M<sub>3</sub> and incomplete M<sub>1</sub> and M<sub>2</sub>; Hunter Quarry. ROM 23188, left mandibular ramus with P<sub>3</sub> to M<sub>3</sub>; Hunter Quarry. ROM 23189, fragment of left mandibular ramus with M<sub>1</sub> to M<sub>3</sub>; Hunter Quarry. ROM 23196, left mandibular ramus with P<sub>3</sub> to M<sub>3</sub>; Hunter Quarry.

#### DESCRIPTION

The mandibular rami listed above appear to represent a single species and will be described together. ROM 23186 is the best preserved and will serve as the basis of the description. The remnant of the symphysis retains part of the alveoli of both I<sub>1</sub> and left I<sub>2</sub>, but no trace of I<sub>3</sub> or C; the I<sub>2</sub> was a large, procumbent tusk. P<sub>1</sub> is represented by the alveolus, the anterior pit being distinct, the posterior closely appressed against P<sub>2</sub>. The latter tooth is ovoid, tapering anterad; the crown is worn but shows a large central cusp on an anterior crest, with a short oblique crest running posterolingual from the cusp. P<sub>3</sub> is molariform except that the trigonid is narrower than the talonid. P<sub>4</sub> is quite molariform but has the small entoconid distinctly separated from the lingual end of the hypolophid. The molars have the talonid about as high as the trigonid. The trigonid crest is L-shaped, that of the talonid is crescentic. The condyle and the coronoid process are almost intact. There is a large dental foramen below the coronoid process. Two mental foramina are present anteroventral to P<sub>2</sub>.

ROM 23188 closely resembles 23186, but is more damaged anteriorly and in the condylar/coronoid region. The P<sub>3</sub> is preceded by two alveolar pits, which indicate the former presence of P<sub>2</sub> but not P<sub>1</sub>. The remaining teeth are almost identical in size with those of ROM 23186, but the P<sub>3</sub> to M<sub>1</sub> are deeply worn.

ROM 23196 is also closely comparable with 23186, but is slightly smaller. All of the preserved teeth, P<sub>3</sub> to M<sub>3</sub>, are deeply worn. There are well-preserved alveoli for P<sub>1</sub> and P<sub>2</sub>.

ROM 5921 is also slightly smaller than ROM 23186. The entoconid on P<sub>4</sub> of 5921 is incompletely separated from the hypolophid. ROM 23184, although fragmentary, is interesting in that DP<sub>4</sub> is present with the unerupted P<sub>4</sub> below it in the jaw. The DP<sub>4</sub> is completely molariform but of course deeply worn. The P<sub>4</sub> has the entoconid



Fig. 23 *Trigonias*, species D, ROM 5921, incomplete right mandibular ramus with P<sub>3</sub> to M<sub>3</sub>; occlusal view,  $\times 0.75$ .

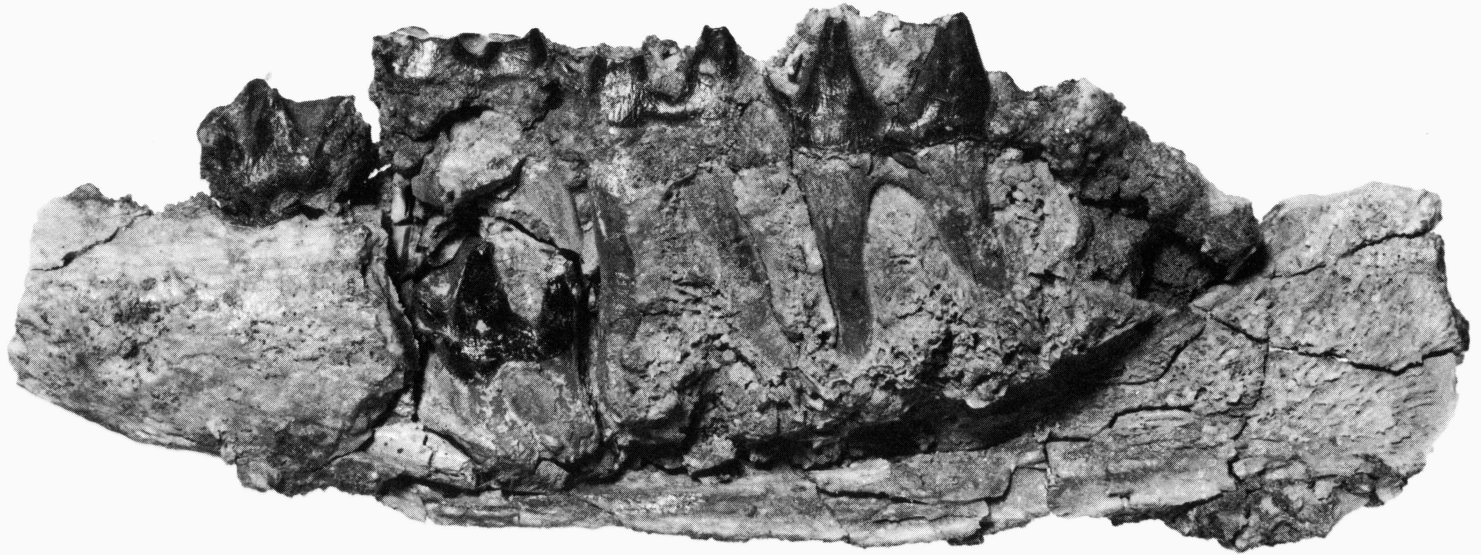


Fig. 24 *Trigonias*, species D, ROM 23184, fragmentary right mandibular ramus with P<sub>3</sub>, DP<sub>4</sub>, P<sub>4</sub>, M<sub>1</sub>, M<sub>2</sub>; lingual view, × 1.



Fig. 25 *Trigonias*, species D, ROM 23186, left mandibular ramus and part of symphysis, with P2 to M3; lateral view,  $\times 0.5$ .



Fig. 26 *Trigonias*, species D, ROM 23186; occlusal view,  $\times 0.75$ .



incorporated into the hypolophid, in contrast to that tooth in ROM 23186. ROM 23187 and 23189, which retain only the molars, are not especially noteworthy. They agree closely in size with ROM 23186.

SMNH P1119.1 is of interest because it shows the I<sub>1</sub> and the P<sub>1</sub>. The incisor is small and spatulate, and originally was partly overlaid by the procumbent I<sub>2</sub>. There was evidently a small I<sub>3</sub>. The P<sub>1</sub> is a small ovoid tooth, slightly trenchant, with a prominent cusp at midlength and small cuspules in front and behind. This specimen is smaller and more delicate than ROM 23186, but the comparable teeth are about the same in size.

#### MEASUREMENTS (in millimetres)

	<i>Length</i>	<i>Width</i>
ROM 23186		
Left P <sub>2</sub>	17.2	12.0
Left P <sub>3</sub>	20.8	16.4
Left P <sub>4</sub>	22.1	18.6
Left M <sub>1</sub>	27.7	19.6
Left M <sub>2</sub>	32.2	22.0
Left M <sub>3</sub>	34.8	21.2

#### REMARKS

Assuming that all of these mandibular rami represent a single species, this would appear to be close to *Trigonias osborni* but consistently somewhat smaller. At the same time they are distinctly larger than SMNH 1635.1 and ROM 11629 (species C). The reference to *Trigonias* is based on the presence of nearly all specimens of P<sub>1</sub>. The exception is ROM 23188, on which P<sub>1</sub> evidently was absent. However, that specimen is otherwise so similar to ROM 23186 that it is included in this group tentatively as an individual variant.

#### *Trigonias?* spp.

#### REFERRED SPECIMENS

ROM 5932 (Fig. 27), fragment of left maxilla with P<sup>2</sup> and P<sup>3</sup>, almost unworn. ROM 23183 (Fig. 28), incomplete mandible with left and right P<sub>2</sub> to M<sub>3</sub>. Both from Hunter Quarry.

#### DESCRIPTION

The crown pattern of the two teeth on ROM 5932 suggests deciduous premolars, but the absence of wear makes this unlikely. P<sup>2</sup> has distinct protoloph and metaloph, not quite connected to the ectoloph. There is a small but high conical hypostyle well clear of the metaloph. P<sup>3</sup> is decidedly molariform except for the strong lingual cingulum and oblique lingual margin. The size is much smaller than that given by Wood (1928) for *T. osborni* but is similar to that of SMNH P833.1.