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The poposaurid thecodontian *Teratosaurus suevicus* v. Meyer, plus referred specimens mostly based on prosauropod dinosaurs, from the Middle Stubensandstein (Upper Triassic) of Nordwürttemberg.

By Peter M. Galton, Bridgeport

With 5 plates and 5 figures

Summary

The maxilla of *Teratosaurus suevicus* v. Meyer from the Middle Stubensandstein (Middle Keuper, Norian, Upper Triassic) of Württemberg represents a rauisuchian thecodontian and, on the basis of a referred ilium that has a prominent supra-acetabular process and the body of which was held vertically (so acetabulum was directed laterally), *Teratosaurus* ist referred to the Poposauridae.

Other specimens from the Middle Stubensandstein previously referred to *Teratosaurus* are shown not to belong to this genus: an ilium is of a parasuchian thecodontian; several postcranial skeleton elements are of the anchisaurid (= plateosaurid) prosauropod dinosaur *Sellosaurus gracilis* v. Huene; and a partial femur is of a theropod dinosaur with a prominent and very proximally placed fourth trochanter, the only match for which is another incomplete femur from the lower Elliot Formation (Carnian or Norian, Upper Triassic) of South Africa. This African femur from the Elliot Formation is made the holotype of *Aliwalia rex* n. g. et sp. that, with the Herrerasauridae and Staurikosauridae, is referred to the new Infra-order Herrerasauria.

Bromsgroveia walkeri n. g. et sp. is based on an ilium from the Bromsgrove Sandstone Formation (Ladinian, Middle Triassic) of England that also has a prominent supra-acetabular process but, because the ilium was held more horizontally (so acetabulum was directed ventrolaterally), *Bromsgroveia* is referred to the rauisuchian family Rauisuchidae.

Zusammenfassung

Das Maxillare von *Teratosaurus suevicus* v. Meyer aus dem Mittleren Stubensandstein (Mittelkeuper, Nor, Obertrias) Württembergs stammt von einem rauisuchiden Thecodontier. Aufgrund eines ebenfalls hierzu gehörenden Iliums mit deutlichem supraacetabularem Fortsatz und vertikal orientierter Iliumplatte (mit lateral gerichteten Acetabulum) wird *Teratosaurus* zu den Poposauridae gestellt.

Weitere, früher *Teratosaurus* zugeschriebene Funde aus dem Mittleren Stubensandstein gehören nicht zu dieser Gattung. Es handelt sich um das Ilium eines Parasuchiers aus der Gruppe der Thecodontier, um verschiedene Postcranialskelette des anchisauriden (= plateosauriden) prosauropoden Dinosauriers *Sellosaurus gracilis* v. HUENE und um das Fragment eines Femurs eines theropoden Dinosauriers mit auffallendem, weit proximal gelegenen viertem Trochanter. Der einzige diesem entsprechende Knochen ist ein ebenfalls unvollständiges Femur aus der unteren Elliot-Formation (Karn oder Nor, Obertrias) von Südafrika. Dieses Femur aus Afrika wird als Holotypus für *Aliwalia rex* n. g. et n. sp. festgelegt. Zusammen mit den Herrerasauridae und Staurikosauridae gehört es zur neuen Infraordnung Staurikosauria.

Bromsgroveia walkeri n. g. et n. sp. basiert auf einem Ilium aus der Bromsgrove Sandstein-Formation (Ladin, Mitteltrias) von England. Diese Art besitzt ebenfalls einen ausgeprägten supraacetabularen Fortsatz. Da das Ilium mehr horizontal orientiert ist (und so das Acetabulum stärker ventrolateral gerichtet war), wird *Bromsgrovia* zur Rauisuchier-Familie der Rauisuchidae gestellt.

Introduction

The holotype maxilla of *Teratosaurus suevicus* v. MEYER 1861 was found by S. F. KAPFF in 1860 in the middle Stubensandstein of Heslach near Stuttgart, and it was purchased by the British Museum in 1864 (LYDEKKER 1888). The maxilla was described as a right by v. MEYER (1861) and v. HUENE (1908, 1932), but WELLES (1947: 275) and WALKER (1964: 106) independently pointed out that it is a left. Several other specimens from the Middle Stubensandstein of Nordwürttemberg have been referred to *Teratosaurus*. V. HUENE (1908) described several teeth as *Teratosaurus suevicus* and fragmentary postcranial material from Aixheim was described as (?) *T. suevicus*. He also erected new species based on two partial postcranial skeletons: *T. (?) trossingensis* from near Trossingen and *T. (?) minor* from the Stromberg region near Pfaffenhofen. V. HUENE (1915) described a partial skeleton from Trossingen as *T. suevicus* plus the tail of the holotype of *T. trossingensis;* he also described another partial skeleton from Pfaffenhofen as *T. minor* (v. HUENE 1932). WELLES (1947: 247) questioned the referral of the ilium of the latter to *Teratosaurus* and noted that a Stubensandstein ilium figured by v. MEYER (1841, pl. 41, fig. 5) might be referrable to *T. suevicus*. WALKER (1964) and CHARIG et al. (1965) independently noted that all the skeletal material referred to *Teratosaurus* was actually from prosauropods, so they restricted *Teratosaurus* to the holotype maxilla. On the basis of the maxilla alone, WALKER (1964) regarded *Teratosaurus* as a true Triassic Carnosauria, CHARIG et al. (1965) classified it as Saurischia incertae sedis, OLSEN & GALTON (1977) regarded it as a possible megalosaurid carnosaur, and WELLES (1984) classified it as a megalosaurid. ROMER (1966) listed *Teratosaurus* as a melanorosaurid prosauropod and COOPER (1981) regarded it as a Triassic carnosaur with a postcranial skeleton at the prosauropod level.

WALKER (1969) restudied the postcranial material from the "Lower Keuper" Sandstone (Middle Triassic) of Warwick and adjacent regions in the English Midlands that v. HUENE (1908) referred to *Thecodontosaurus antiquus*, a prosauropod dinosaur well represented by material from the Rhaetic (Upper Triassic) near Bristol, England (see v. HUENE 1908). WALKER (1969) concluded that most of the Warwick material was from a poposaurid archosaur similar to *Poposaurus* (COLBERT 1961) from the Middle Triassic of Wyoming, U.S.A. The Warwick material also includes large teeth, that were referred to *Teratosaurus* by HUXLEY (1870) and v. HUENE (1908, figs. 269—273), and WALKER (1969) stated that an ilium described by OWEN (1842, pl. 45, figs. 16, 17) was very similar to a Stubensandstein ilium figured by v. MEYER (1861, pl. 41, figs. 1, 2). WALKER (1969: 471) noted that the holotype maxilla of *Teratosaurus suevicus* "may, as suggested by WELLES (1947), actually belong with the Stubensandstein ilium." However, WELLES (1947: 279) referred to a

different ilium (v. MEYER 1861, pl. 41, fig. 5), and the measurements he gave (16 cm by 8.5 cm) agrees with this ilium, not the one cited by WALKER (1969) which measures 25.2 cm by 11.5 cm (v. MEYER 1861, pl. 41, figs. 1, 2). GALTON (1977) referred the Poposauridae including the Stubensandstein ilium (v. MEYER 1861, pl. 41, figs. 1, 2) to the order Thecodontia, suborder Pseudosuchia. BONAPARTE (1981, 1984) referred *Teratosaurus* and the Warwick ilium to the pseudosuchian family Rauisuchidae, whereas CHATTERJEE (1982, 1985) included the Rauisuchidae and the Poposauridae together as the infraorder Rauisuchia.

The purpose of this paper, the second in a series revising the archosaurian reptiles from the Stubensandstein of Nordwürttemberg, is to review the systematics of the specimens that have been referred to *Teratosaurus* v. MEYER 1861. Institution names for cited specimens have been abbreviated as follows:

BMNH: British Museum (Natural History), London;
GPIT: Institut für Geologie und Paläontologie der Universität Tübingen;
NMW: Naturhistorisches Museum Wien, Austria;
SMNS: Staatliches Museum für Naturkunde in Stuttgart;
WM: Warwickshire Museum, Warwick, England.

Class Reptilia
Order Thecodontia
Suborder Pseudosuchia
Infraorder Rauisuchia v. HUENE 1942
Family Poposauridae NOPCSA 1928

Diagnosis. — Facultatively bipedal, gracile, maxillary teeth 13, cervicals elongate; ilium vertical with supra-acetabular process that is usually supported by or fused to a subvertical buttress that is posterior to angle between anterior and pubic processes; acetabulum partly open, pubis with prominent hook at distal end (modified from CHATTERJEE 1985).

Genus *Teratosaurus* v. MEYER 1861

Type species: *Teratosaurus suevicus* v. MEYER 1861.

Diagnosis: Same as for the only species given below.

Teratosaurus suevicus v. MEYER 1861

Holotype: BMNH 38646, right maxilla (Figs. 1E, 3A; Pl. 1; v. MEYER 1861: 258—263, pl. 45; v. HUENE 1908; 155—157, fig. 161, pl. 64. fig. 1; 1932: 94, pl. 8).

Type horizon and locality: Middle Stubensandstein (Middle Keuper, Norian, Upper Triassic) of Heslach in Stuttgart.

Referred specimens: all from Stubensandstein (Middle unless stated to the contrary) of Nordwürttemberg:

BMNH 38647, 38648: Two tooth crowns from Stuttgart, same history as holotype (LYDEKKER 1888), so probably from Heslach.

SMNS 53535: Piece of right maxilla with parts of crowns of four teeth (v. HUENE 1908, pl. 98, fig. 1) from Stuttgart.

SMNS 9918: Isolated tooth crown (E. FRAAS 1900, fig. 2; v. HUENE 1908, pl. 98, fig. 2) from Aixheim near Rottweil.

SMNS 53536, 5212: Two isolated tooth crowns (v. HUENE 1908, pl. 98, figs. 5, 6) from Kaltental in Stuttgart.

Depository and number unknown: Isolated tooth crown (BERCKHEMER 1938, fig. 40) from Upper Stubensandstein ("Konglomeratkalk") of Markung Cleebronn, Stromberg region. This tooth is not in SMNS collection, so it is either lost or it may be in the private collection of Dr. O. LINCK at Güglingen (R. WILD, personal communication).

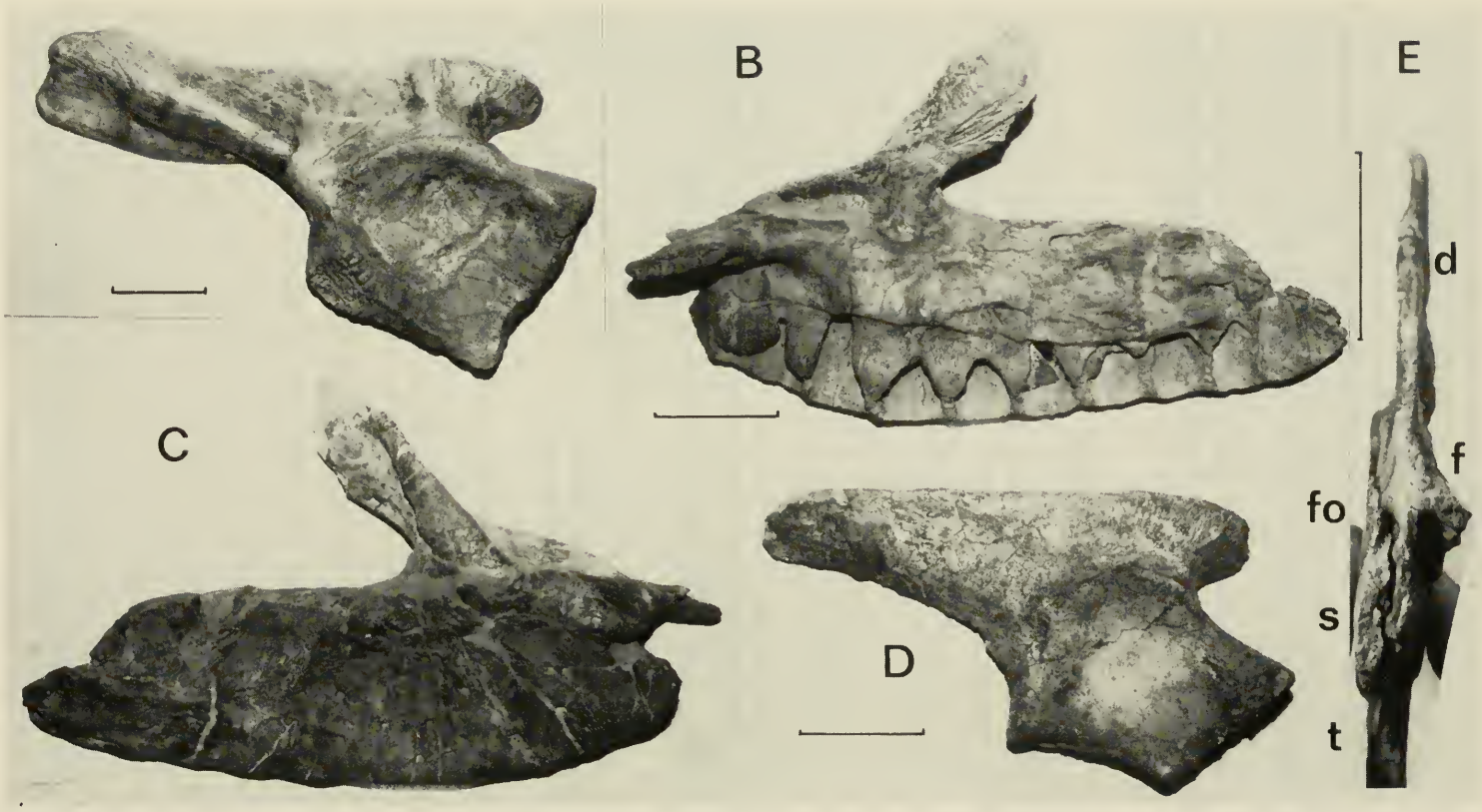

Fig. 1. A—C: Rauisuchid thecodontian SMNS 52970 from Upper Lettenkeuper (Lower Keuper, Middle Triassic) of Kupferzell near Schwäbisch Hall (see WILD 1978, 1979). A: right ilium in lateral view, — × ¼; B, C: right maxilla, — × ⅓, in B: medial (see WILD 1979: 45) and C: lateral views.
D: Parasuchian thecodontian *Nicrosaurus* SMNS 52971; right ilium from Middle Stubensandstein of Heslach in Stuttgart, — × ⅓.
E: Poposaurid thecodontian *Teratosaurus suevicus* v. MEYER, BMNH 38646, holotype; right maxilla from Middle Stubensandstein of Heslach in Stuttgart, in anterior view (v. MEYER 1861, pl. 45, fig. 3), — × ½.
d = dorsal process; f, fo = foramina; s = subnarial fenestra; t = tooth 3. — Scale lines represent 5 cm.

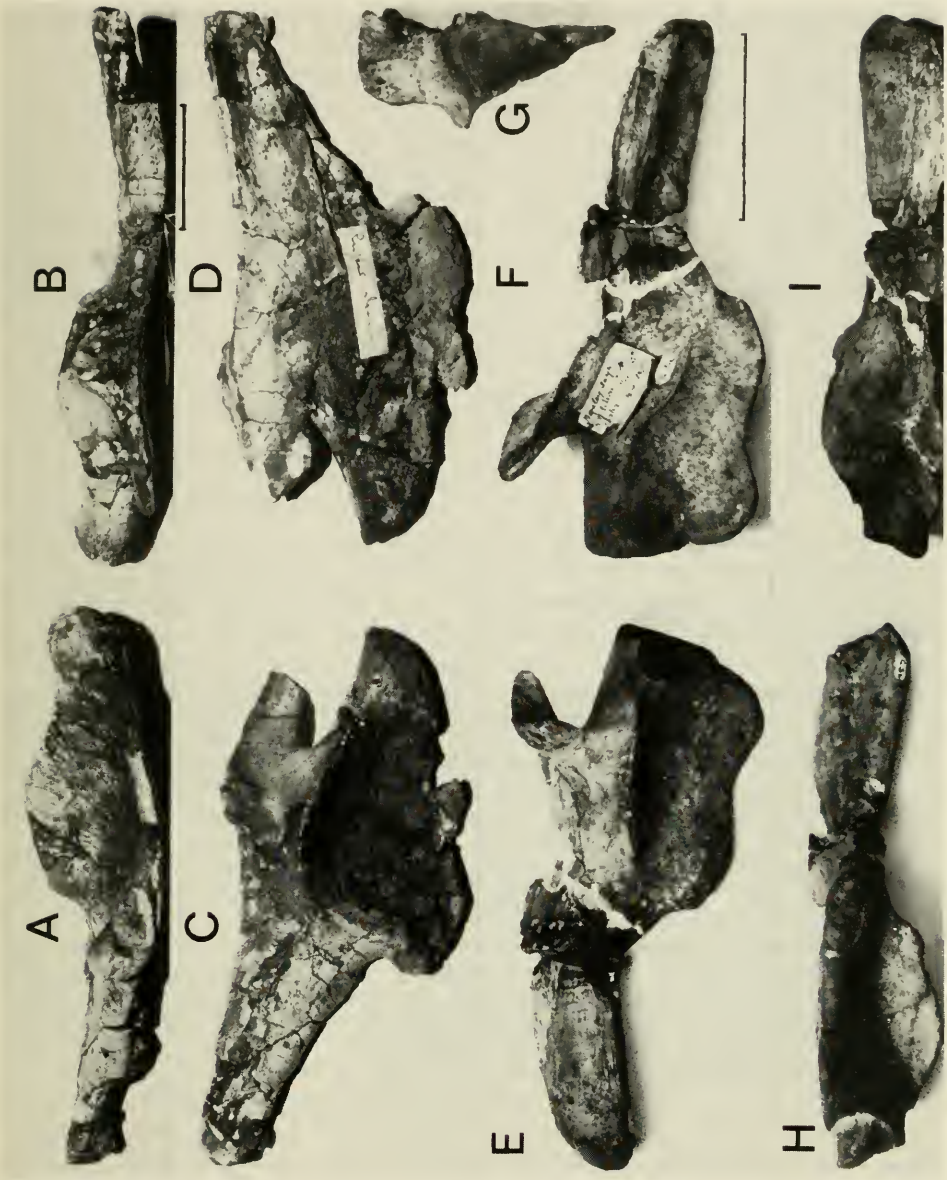

Fig. 2. A—D: Poposaurid thecodontian *Teratosaurus suevicus* v. MEYER, referred specimen SMNS 52972. Right ilium from Middle Stubensandstein of Heslach in Stuttgart, — × ⅓. A: ventral; B: dorsal; C: lateral and D: medial views. See also Fig. 4A—C.
E—I: rauisuchid thecodontian *Bromsgroveia walkeri* n. g. et n. sp., holotype WM G3. a, b from Bromsgrove Sandstone Formation (Middle Triassic) of Coton End Quarry, Warwick, England, — × ½. E: lateral; F: medial; G: anterior; H: ventral and I: dorsal views. See also Figs. 4H, I.
Scale lines represent 5 cm.

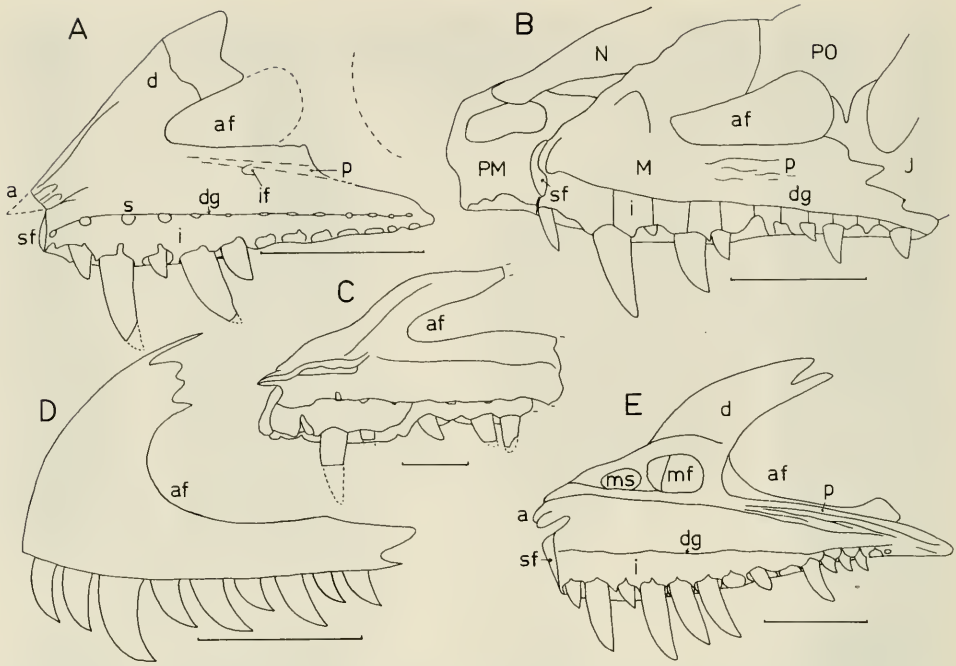

Fig. 3. A, B, Poposaurid rauischians; A: *Teratosaurus suevicus* v. Meyer, BMNH 38646, holotype, right maxilla in medial view, from Middle Stubensandstein of Stuttgart (Pl. 1, Fig. 5); B: *Postosuchus,* right maxilla (left reversed) with associated bones from Dockum Formation (Middle Triassic) of Texas, U.S.A., after Chatterjee (1985); C: right maxilla (left reversed) in medial view of rauisuchid rauisuchian *Fasolosuchus* from Los Colorados Formation (Upper Triassic) of La Rioja, Argentina, after Bonaparte (1981); D: left maxilla in lateral view of ornithosuchid *Ornithosuchus* from Lossiemouth Beds (Upper Triassic) of Scotland, after Walker (1964); E: right maxilla in medial view of carnosaurian theropod *Allosaurus* from Morrison Formation (Upper Jurassic) of Utah, U.S.A., after Madsen (1976).
a = anteromedial process; af = antorbital fenestra; d = dorsal process; dg = dental groove; i = interdental plate; if = infraorbital foramen; J = jugal; M = maxilla; mf = maxillary fenestra; ms = maxillary sinus; N = nasal; p = surface for palatine; PM = premaxilla; pm = surface for premaxilla; PO = postorbital; s = special foramina for access of replacement teeth; sf = subnarial fenestra.
Scale lines represent 5 cm (D) and 10 cm.

SMNS 52972: Isolated right ilium (Figs. 2A—D; 4A—C; v. Meyer 1861, pl. 41, figs. 1, 2; Galton 1977, fig. 6K; as *Phytosaurus kapffi* by v. Huene 1922, fig. 29; Kuhn 1971, fig. 23. 28) from Heslach in Stuttgart.

Diagnosis. — Maxilla with 13 teeth, main body relatively deep, posterodorsal edge of wide dorsal process V-shaped. Ilium with supra-acetabular process from dorsal edge above anterior part of acetabulum, postacetabular process posterodorsally directed.

Description. — The maxilla BMNH 38646 was described by v. Meyer (1861) and v. Huene (1908, 1932) as coming from the left side. However, in these descriptions the "lateral surface" is the medial surface (Fig. 3A; Pl. 1, Fig. 5) because the alveolar margin is higher on this side (Welles 1947) that bears a well defined series of foramina, one per tooth

position and connected together by a groove, that allowed access into the alveoli for replacement teeth (WALKER 1964). Consequently, this is a right maxilla. v. HUENE (1908) noted that the small piece (Pl. 1, Fig. 4) figured by v. MEYER (1861, pl. 45, fig. 4) was lost, but this was incurrect because it is visible in his photograph (v. HUENE 1908, pl. 64, fig. 1 cf. Pl. 1, Fig. 5). However, the tip of the anteromedial process described by v. MEYER (1861, pl. 45, figs. 1, 2) is still missing (Fig. 3A; Pl. 1, Figs. 1, 5). v. HUENE (1932, pl. 8; 1956, fig. 511; see also COLBERT 1962, fig. 9; KUHN 1971, fig. 26. 2) reconstructed the complete skull from the maxilla and showed a maxillary fenestra at the base of the dorsal process. Medially (Pl. 1, Fig. 5), the region of the "fenestra" is covered by matrix but laterally it is covered by bone (Pl. 1, Fig. 1). The bone was correctly shown without this fenestra (Fig. 3A) by v. MEYER (1861) and v. HUENE (1908).

In lateral view (Pl. 1, Fig. 1; v. MEYER 1861, pl. 45, figs. 2, 4), the upper part of the relatively deep dorsal process is well preserved (Pl. 1, Fig. 2), but ventral to this much of the compact bony surface is missing. However, the outline is complete apart from the anterior tip, and the posterodorsal corner of the main body which is also deep. The lateral wall of alveoli 1 to 3 can be removed to reveal the roots of teeth 2 and 3 and the anterior part of the natural mold of a canal (Pl. 1, Figs. 1, 3), probably the route for branches of the maxillary artery and of the inferior orbital nerve (branch of trigeminal nerve V), that opened by a foramen on the anterolateral surface (f, Fig. 1E; v. MEYER 1861, pl. 45, fig. 3). Ventral to the foramen this surface is concave and obliquely inclined (Pl. 1, Fig. 5), and it slightly overlapped the adjacent surface of the premaxilla to form a small subnarial fenestra. The incomplete anteromedial process, with that of the left maxilla, would have fitted between the premaxillae. Immediately ventral to this process is a second foramen (fo, Fig. 1E) that was probably also for a branch of the maxillary artery and of the inferior orbital nerve that probably entered the bone through the infraorbital foramen more posteriorly (if, Fig. 3A) with the exiting maxillary vein. Apart from a couple of parts of the dorsal process that are covered with matrix, the medial surface is well preserved (Pl. 1, Fig. 5; v. MEYER 1861, pl. 45, fig. 1). Thirteen alveoli are preserved of which alveoli 3,5 and 7 (last with most of crown missing) contain fully erupted teeth, alveoli 2, 4 and 6 contain teeth in the process of being erupted, and alveoli 7 to 13 lack erupting or erupted teeth. A large replacement tooth is visible in alveolus 1 (Pl. 1, Fig. 4; v. MEYER 1861, pl. 45, fig. 4) and small replacement teeth are visible through several of the foramina that are connected together by a groove (Pl. 1, Fig. 5). The interdental plates are fused together, forming a continuous palisade medially for the alveoli, and the ventral margin of each plate is incised to a varying degree. The sutural ridges on the bone above alveoli 6 to 10 were for the palatine, and the jugal probably fitted against the posterior edge.

The right ilium SMNS 52972 was described by v. MEYER (1861: 327—328, pl. 41, figs. 1, 2), briefly discussed by v. HUENE (1922: 75, fig. 29), and referred to the parasuchian (phytosaurian) thecodontian *Nicrosaurus (Phytosaurus) kapffi* by v. HUENE (1922) and KUHN (1971, fig. 23. 28). This ilium (Figs. 2A—D, 4A—C) is similar to those of parasuchian thecodontians from the Middle Stubensandstein (Figs. 1D, 4F, G), but there are also important differences. The anterior process is incomplete (Figs. 2C, D), but it is proportionally longer, the acetabular rim is much more prominent and projects further laterally (Figs. 2A—C, 4A) and, most importantly, the dorsal edge has an enormous laterally projecting supra-acetabular process that overhangs the rim of the acetabulum (Figs. 2B, C, 4A). The maximum transverse width of this process is 28 mm. Other maximum lengths in mm of this ilium are: preserved length, 254 (originally about 260); and length ventrally, 161. In medial view (Figs. 2D, 4C), the postacetabular process is vertically concave, with a

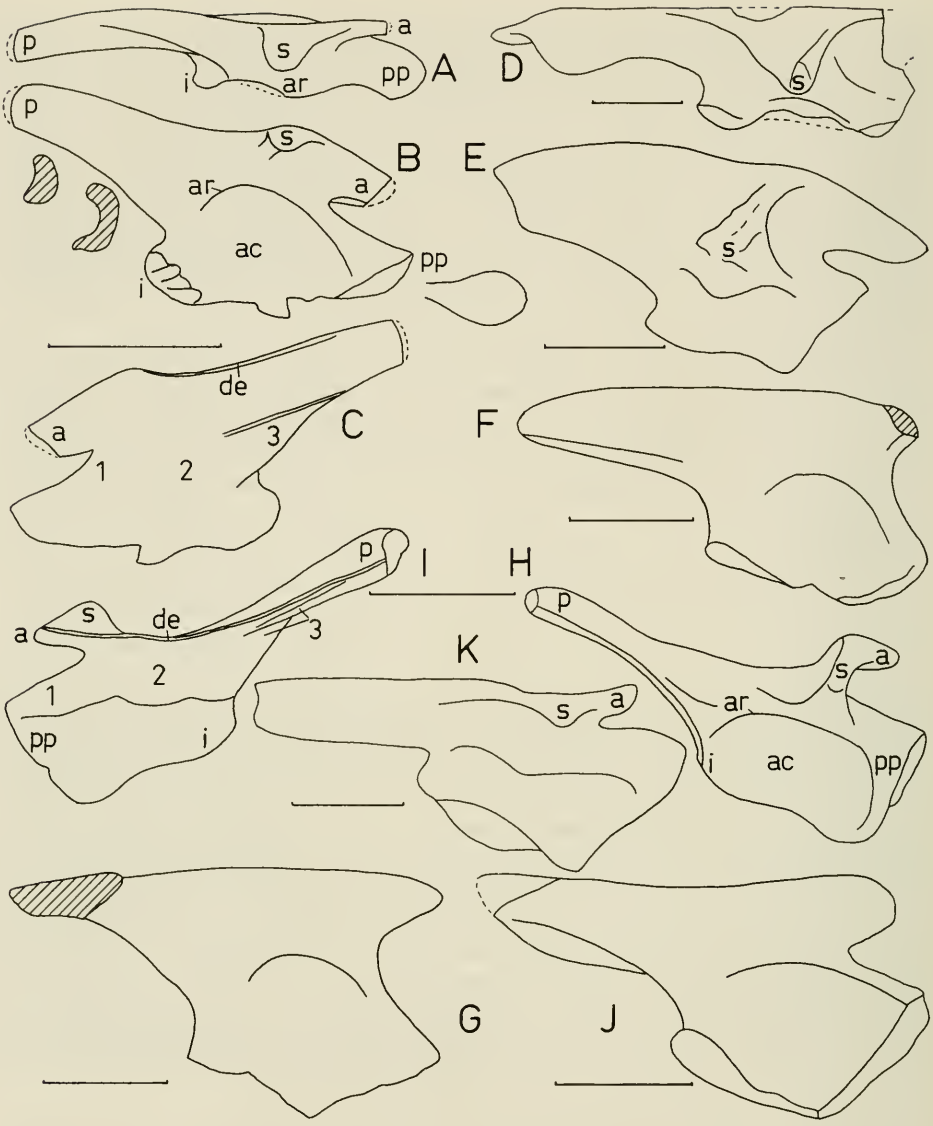

Fig. 4. A—C: Poposaurid *Teratosaurus suevicus* from Middle Stubensandstein of Stuttgart, referred right ilium SMNS 52972 (Figs. 2A—D) in A: dorsal; B: lateral and C: medial views; D: poposaurid *Poposaurus* from Popo Agie Beds (Middle Triassic) of Wyoming, U.S.A., right ilium (left reversed) in lateral view, after GALTON (1977); E: poposaurid from Dockum Formation (Middle Triassic) of Texas, U.S.A., right ilium in lateral view, after CHATTERJEE (1985); F, G: right ilia in lateral view of parasuchids from Middle Stubensandstein; F: SMNS 53534 from Stuttgart, after v. MEYER (1861); G: SMNS 12986 from Pfaffenhofen (left reversed, for figure of complete pelvic girdle with ilium incompletely prepared see v. HUENE 1922, fig. 30); H, I: rauisuchid rauisuchian *Bromsgroveia walkeri* n. g. et sp. from Bromsgrove Sandstone Formation (Middle Triassic) of Warwick, England, WM G3a, b, holotype; right ilium in H: lateral and I: medial views, modified after OWEN (1842); J: rauisuchid *Stagonosuchus* from Manda Formation (Middle Triassic) of Tanzania, East Africa, right ilium (left

sharp dorsal edge and a prominent ventral ridge that bordered the attachment area for the third sacral rib (parasuchians have only two sacral ribs).

Comparisons. — In Carnosauria of the Middle Jurassic (*Megalosaurus*, *Eustreptospondylus;* v. Huene 1926a, figs. 1, 12) and Upper Jurassic (*Allosaurus;* Madsen 1976), a part of the antorbital fenestra is totally enclosed by the maxilla to form a maxillary fenestra (Fig. 3E). This is in contrast to the situation in all thecodontians that lack a maxillary fenestra (Figs. 3B—D; Charig et al. 1976). The maxilla of *Teratosaurus* lacks a maxillary fenestra (Fig. 3A), so it is from a thecodontian rather than a carnosaur. The maxilla is not particularily similar to those of ornithosuchians (Fig. 3D; Bonaparte 1975, 1978; Charig et al. 1976) but resembles those of the two rauisuchian families (Chaterjee 1982), the Rauisuchidae (Figs. 1B, C, 3C; Bonaparte 1978, 1981, 1984; Sill 1974) and Poposauridae (Fig. 3B; Chatterjee 1985). The tooth count of *Teratosaurus* is 13 (Fig. 3A; Pl. 1, Fig. 5) as in the poposaurid *Postosuchus* (Fig. 3B) rather than 11 (Fig. 1B) or less in rauisuchids (Fig. 1B; Chatterjee 1985) so, on this basis, *Teratosaurus* is referred to the Poposauridae rather than to the Rauisuchidae.

The maxilla (Pl. 1) and ilium (Figs. 2A—D) described by v. Meyer (1861) were both collected by S. F. Kapff from Heslach, so they may have come from the same quarry and, possibly, from the same individual. The form of the ilium is very distinctive and, as pointed out by Walker (1969), it is referable to the Poposauridae, the ilia of which have a prominent supra-acetabular process with or without a subvertical buttress above the acetabulum (Figs. 4D, E; Walker 1969, Galton 1977, Chatterjee 1985). The Heslach ilium has a moderately deep blade, and it was held mostly vertically with the acetabulum facing largely laterally as in other poposaurids and most thecodontians. The Heslach ilium is similar to that of an intermediate sized individual of the poposaurid *Postosuchus* (Chatterjee 1985) in which the large supra-acetabular process is on the dorsal edge and is not supported more ventrally by a large subvertical buttres as in adults (Fig. 4E). Walker (1969) noted that the form of the Heslach ilium is closest to an ilium (Figs. 2E—I, 4H, I) described by Owen (1842: 533—534, pl. 45, figs. 16, 17) from the Bromsgrove Sandstone Formation (Middle Triassic) of Warwick, England. Walker (1969), Galton (1977) and Chatterjee (1985) referred the Warwick ilium to the Poposauridae, whereas Bonaparte (1981) referred it, along with other poposaurids including *Teratosaurus*, to the Rauisuchidae. Bonaparte (1981, 1984) noted certain features of the rauisuchid ilium that set it apart from those of other thecodontians. The ilium is inclined ventrolaterally, with the acetabulum facing ventrally rather than laterally, and the blade is low with a proportionally long posterior process and a small anterior process (Figs. 1A, 4J). The ilium of the rauisuchid *Saurosuchus* has a small laterally directed process that overhangs the acetabular rim (Fig. 4K). Consequently, the "diagnostic" laterally directed supra-acetabular process was developed in both the Poposauridae and the Rauisuchidae. The Heslach ilium (Figs. 2A—D, 4A—C) is plainly that of a poposaurid, the family to which *Teratosaurus* is referred with Poposauridae Nopcsa 1928 having priority over Teratosauridae v. Huene

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reversed) in lateral view, after v. Huene (1938); K: rauisuchid *Saurosuchus* from Ischigualasto Formation (Middle Triassic) of Argentina, right ilium in lateral view, after Bonaparte (1984).

a = anterior process; ac = acetabulum; ar = acetabular rim; de = dorsal edge of ilium; i = ischiadic head; p = postacetabular process; pp = pubic peduncle; s = supraacetabular process; 1—3, attachment areas for sacral ribs 1 to 3.

Scale lines represent 5 cm (D, F—I) and 10 cm.

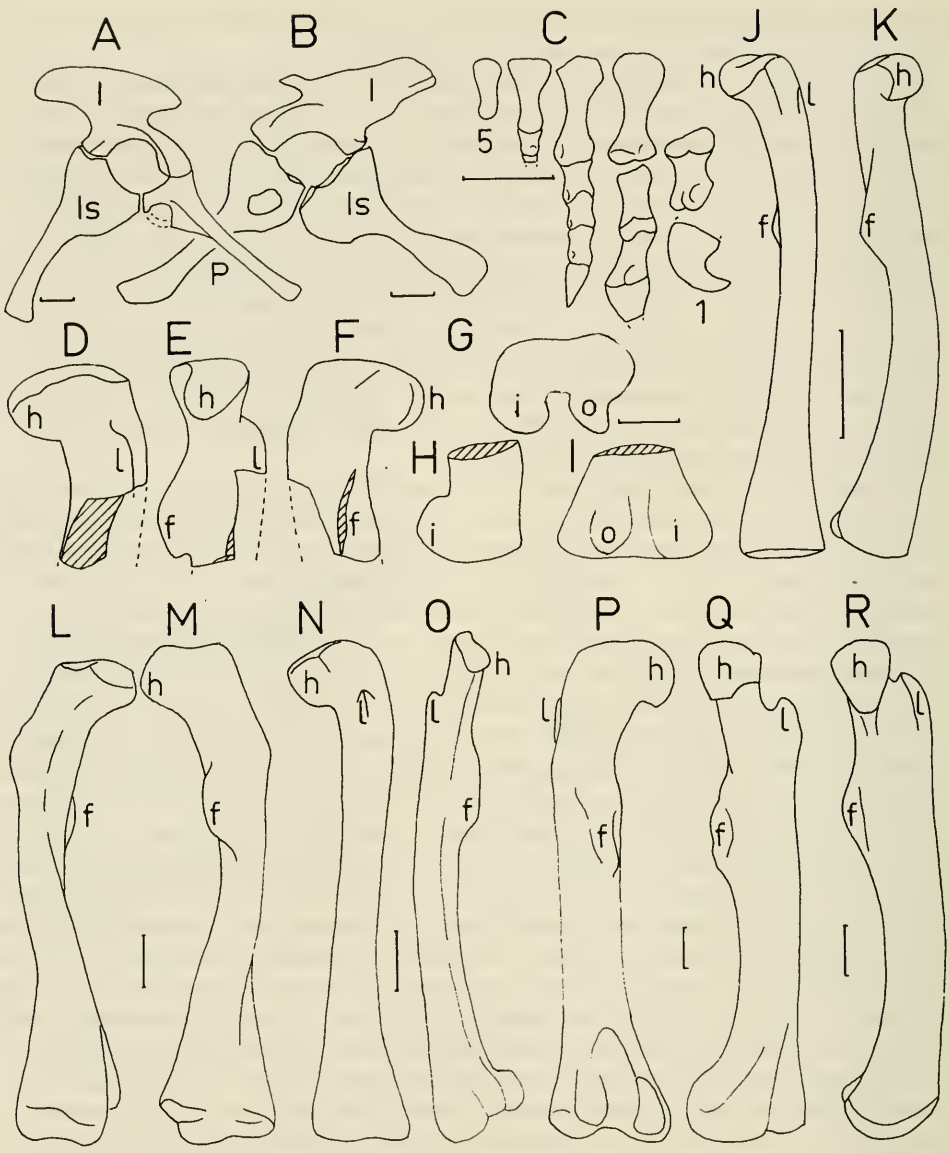

Fig. 5. Anchisaurid prosauropod dinosaur *Sellosaurus gracilis* from Middle Stubensandstein of Nordwürttemberg. A: right pelvic girdle in lateral view, from Aixheim, GPIT, after v. Huene (1901) and referred to *Teratosaurus suevicus* by v. Huene (1908); B: left pelvic girdle in lateral view, GPIT 18392 from Trossingen, after v. Huene (1915, as *Teratosaurus suevicus*); C: right manus in dorsal (lateral) view, SMNS 11838, part of holotype of *Teratosaurus minor,* after v. Huene (1908); D—I: terapod *Aliwalia rex* n. g. et n. sp., holotype NMW 1889—XV—39 and NMW 1876—VII—B124 from lower Elliot Formation of South Africa, incomplete left femur (pl. 5) after v. Huene (1906), proximal end in: D: anterior; E: medial and F: posterior views, and distal end in G: distal; H: medial, and I: posterior view; J—R: left femora of saurischian dinosaurs in anterior (J, L, N), medial (K, O, Q, R), and posterior view (M, P); J. K: *Staurikosaurus pricei* Colbert from Santa Maria Formation (upper Middle Triassic) of Brazil,

1932, whereas the Warwick ilium (Figs. 2E—I, 4H, I) is that of a rauisuchid as delineated by BONAPARTE (1984). The characters of two other bones from Warwick, a sacrum (WM Gl, a, b, HUXLEY 1870, pl. 3, figs. 8—10; v. HUENE 1908, fig. 214) and an ischium (WM G2. 970; v. HUENE 1908, fig. 228) to be described elsewhere (GALTON & WALKER in prepn.), agree with those of rauisuchids as discussed by BONAPARTE (1984) who correlates the characters concerned (ventrolaterally facing sacral ribs, narrow transverse width of ischium proximally) with the more horizontal inclination of the ilium. The supra-acetabular process of the Warwick ilium is much larger than in any rauisuchid described to date, and the subvertical buttress is more anteriorly placed than in any poposaurid described, so it is made the holotype of a new taxon of rauisuchid.

Family Rauisuchidae v. HUENE 1942

Diagnosis. — Quadrupedal, maxillary teeth 11 or less, cervicals short; in advanced genera ilium horizontal with supra-acetabular process small or large with a subvertical buttress at angle between anterior and pubic processes; acetabulum closed, pubis rod-like (modified from CHATTERJEE 1985).

Genus *Bromsgroveia* n. gen.

Type species: *Bromsgroveia walkeri* n. sp.
Etymology: Latinization of Bromsgrove, a locality in Warwick, England, from where the sandstone with the fossil material came.

Diagnosis: Same as for the only species given below.

Bromsgroveia walkeri n. sp.

Holotype: WM G3a, b, a right ilium (cast as BMNH R2549; Figs. 2E—I, 4H, I; OWEN 1842, pl. 45, figs. 16, 17; GALTON 1977, fig. 6J).
Type horizon and locality: Upper part of Bromsgrove Sandstone Formation of Sherwood Sandstone Group (Early Ladinian, Middle Triassic; WARRINGTON et al. 1980) of Coton End Quarry, Warwick, Warwickshire, England.
Paratypes: All from Bromsgrove Sandstone of Coton End, Warwick: WM G2. 1, 2, sacrum (HUXLEY 1870, pl. 3, figs. 8—10; v. HUENE 1908, fig. 214); WM G2. 5, first caudal vertebra (OWEN 1842, pl. 45, figs. 1—4; v. HUENE 1908, fig. 215); WM G2. 970, left ischium (v. HUENE 1908, fig. 228).
Etymology: To honor Dr. ALICK D. WALKER who first recognized the thecodontian nature of this material from Warwick.

Diagnosis. — Ilium with large laterally directed supra-acetabular process plus a large vertical process at end that is very anteriorly placed so level with the apex of the angle between the anterior process and the pubic peduncle.

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after GALTON (1977); L, M: *Herrerasaurus* REIG from Ischigualasto Formation (lower Upper Triassic) of Argentina, after REIG (1963); N, O: *Liliensternus* WELLES 1984 (for *Halticosaurus liliensterni* v. HUENE 1934) from Knollenmergel (Middle Keuper, Upper Triassic) of Halberstadt, East Germany, after v. HUENE (1934); P, Q: carnosaurian theropod *Megalosaurus* from Middle Jurassic near Oxford, England, after OWEN (1855); R: carnosaurian theropod *Eustreptospondylus* from Middle Jurassic of Oxford, England, after NOPCSA (1906).
f = fourth trochanter; h = head; I = ilium; i = inner condyle; Is = ischium; l = lesser trochanter; o = outer condyle; P = pubis; 1,5 = digits 1,5.
Scale lines represent 10 cm (A, B) and 5 cm.

Description. — The holotype and paratypes along with referred specimens (vertebrae, see v. Huene 1908; teeth, see v. Huene 1908 as *Teratosaurus lloydi*) from the Bromsgrove Sandstone Formation of Warwick and Bromsgrove will be described elsewhere (Galton & Walker in prepn.).

Stubensandstein material incorrectly referred to *Teratosaurus*

Order Thecodontia
Suborder Parasuchia
Family Phytosauridae Lydekker 1888

Genus ?*Nicrosaurus* O. Fraas 1866

SMNS 53534, a right ilium (Fig. 4F; v. Meyer 1861: 329, pl. 41, fig. 5) from the Middle Stubensandstein of Heslach in Stuttgart was referred to *Teratosaurus* by Welles (1947: 279). However, this ilium is very similar to those of parasuchians from the Middle Stubensandstein (Figs. 1D, 4G) so it is referred to the Phytosauridae as? *Nicrosaurus*.

Order Saurischia
Suborder Sauropodomorpha
Infraorder Prosauropoda
Family Anchisauridae (= Plateosauridae) Marsh 1885

Genus *Sellosaurus* v. Huene 1908

Sellosaurus gracilis v. Huene 1908

Holotype: SMNS 5715, a partial postcranial skeleton from the Middle Stubensandstein of Heslach in Stuttgart (v. Huene 1908: 178—183, figs. 192, 193; pl. 68, fig. 2; pls. 71—73, 107; Galton 1984, pl. 3).

Referred specimens. — The following partial postcranial skeletons, previously referred to *Teratosaurus*, all come from the Middle Stubensandstein of Nordwürttemberg:

(?) *Teratosaurus suevicus* v. Meyer 1861. — GPIT, referred specimen from Aixheim near Rottweil (Pl. 2, Figs. 10—12; v. Huene 1908: 157—168, figs. 162—175, pl. 64, figs. 2—5, pl. 65, pl. 66, figs. 1—4, pls. 67, 106; 1932: 94—95; also unnamed as v. Huene 1901, fig. 6);

GPIT 18392, referred specimen from Trossingen (v. Huene 1915: 15—24, pls. 4—6; 1932: 94:95).

(?) *Teratosaurus trossingensis* v. Huene 1908. — Holotype GPIT 18064 from Trossingen (Pl. 2, Figs. 13—15; Pl. 3, Figs. 19—21; v. Huene 1908: 171—174, figs. 182–187; 1915: 24—25, fig. 15; 1932: 99).

(?) *Teratosaurus minor* v. Huene 1908. — Holotype SMNS 11838 from Stromberghöhe, near Pfaffenhofen southwest of Brackenheim (Pl. 2, Figs. 1»9; Pl. 3, Fig. 22; v. Huene 1908: 174—177, figs. 188—191, pls. 69, 70; 1932: 95—96);

SMNS 12843, referred specimen from Pfaffenhofen (Pl. 3, Figs. 1—18; v. Huene 1932: 96—98, pls. 9, 10).

Discussion. — The complete anatomy of the prosauropod dinosaur *Plateosaurus* is well known from several complete skeletons (v. Huene 1926b, 1932) from the Knollenmergel (Middle Keuper, Upper Triassic) and, in addition, partial skeletons of the prosauropod *Sellosaurus* have been described from the underlying Middle (v. Huene 1908, 1915, 1932) and Lower Stubensandstein (Galton 1984). The specimens listed above were described by v. Huene (1908, 1915, 1932) and most of the material that is still available is illustrated (Pls. 2, 3). In no case is there any associated cranial material of *Teratosaurus*, and

the referral was based at most on the presence of isolated teeth close to the specimen (GPIT 18064, 18392) or in the same quarry (GPIT, Aixheim). However, carnivorous archosaurs shed their teeth so the preservational association of teeth of a carnivorous aspect with prosauropod postcrania has no systematic implications (GALTON 1985). The prosauropod characters of this material (cf. v. HUENE 1926b, pls. 2—7) are summarized in the same order as the specimens are listed above as follows:

GPIT Aixheim. — The form of the third sacral rib (Pl. 2, Figs. 10—12; v. HUENE 1908, fig. 163, pl. 64, fig. 3) is very similar to those of *Sellosaurus* (v. HUENE 1908, pl. 72, fig. 4; GALTON 1984, figs. 1B, C) in having a thin vertical lamina, so it is roughly T-shaped in lateral view. The form of the pelvic girdle (Fig. 5A; v. HUENE 1901, fig. 6; 1908 pl. 66, fig. 1, pl. 67) ist very similar to those of *Plateosaurus* and *Sellosaurus* (GALTON 1984, figs. 1F, G). The femur (v. HUENE 1908, pl. 68, fig. 1) resembles those of *Plateosaurus* and *Sellosaurus* in having a prominent head that is obliquely inclined with respect to the rest of the femur, a ridge-like lesser trochanter, and a prominent fourth trochanter that is just above mid-length.

GPIT 18392. — The pelvic girdle (Fig. 5B; v. HUENE 1915, pl. 6) is very similar to those of *Plateosaurus* and *Sellosaurus* (GALTON 1984, figs. 1F, G).

GPIT 18064. — The ascending process of the astragalus (v. HUENE 1908, fig. 182) that keys into the distal end of the tibia, as in all prosauropods, is low (Pl. 3, Figs. 19, 21) so it is more similar to the astragalus of *Sellosaurus* than that of *Plateosaurus*. The form of the pes (Pl. 2, Fig. 13; v. HUENE 1908, fig. 186) is typically prosauropod, but it is relatively broad so it resembles *Plateosaurus* more closely than *Sellosaurus* in this respect (GALTON 1984, figs. 1H—J). However, this is probably a size difference because the pes of *Sellosaurus* described by v. HUENE (1908, 1932) are from smaller individuals.

SMNS 11838. — The manus (Fig. 5C; v. HUENE 1908, fig. 189) is typically prosauropod and similar to those of *Plateosaurus* and *Sellosaurus* (GALTON 1984, figs. 1D, K). v. HUENE (1932) correctly noted that the tibia and fibula (Pl. 2, Figs. 3—6; v. HUENE 1908, pl. 70, figs. 2, 3) are too long to be associated with the femur (Pl. 2, Figs. 1, 2; v. HUENE 1908, pl. 70, fig. 1; also pubes, v. HUENE 1908, pl. 69, fig. 1); this is also true for the incomplete pes (Pl. 2, Fig. 7; v. HUENE 1908, pl. 69, fig. 2) so at least two individuals are represented. However, the form of these bones is typically prosauropod and similar to those of *Plateosaurus* and *Sellosaurus*. Traces of the ascending process of the astragalus keying into the tibia are visible (Pl. 3, Fig. 22).

SMNS 12843. — The form of the femur and tibia (Pl. 3, Figs. 6—9; v. HUENE 1932, pl. 10, figs. 1, 2) are definitely prosauropod.

Genus and species indeterminate

v. HUENE (1908: 168—169, figs. 176—178, pl. 64, fig. 5) referred three isolated bones from the Middle Stubensandstein of Nordwürttemberg to *Teratosaurus suevicus* – a dorsal centrum from Aixheim (SMNS 54698) and another one from Neuhaus near Aixheim plus the first ungual phalanx of the manus (GPIT 15615) from Schwenningen. This material is probably prosauropod, but it is generically and specifically indeterminate. This is also true for the material referred by v. HUENE (1908: 169—171, fig. 179, pl. 25, figs. 5—7, pl. 26, fig. 3) to *Teratosaurus suevicus* that came from the "Fränkische Semionotus-Sandstein" of Günthersbühl near Nürnberg. This material is discussed by GALTON (1984) who notes that it probably came from the Lower Burgsandstein or possibly the overlying Feuerletten-Konglomerat near Nürnberg.

Suborder Theropoda

SMNS 12843 from the Middle Stubensandstein of Pfaffenhofen included the proximal end of a femur (now SMNS 51958; Pl. 4, Figs. 5—8), the form of which is very different from the right femur (Pl. 3, Figs. 6, 7). From the curvature in lateral view (Pl. 4, Fig. 5), this is a left femur, and the fourth trochanter (Pl. 4, Figs. 5, 7) is not tending towards a pendant form, as it is in SMNS 12843 (Pl. 3, Fig. 7), and it is very close to the head (Pl. 4, Figs. 5—7) rather than just above mid-length (Pl. 3, Figs. 6, 7). The insertion area for the M. caudifemoralis longus is indicated by a rugose depression on the medial surface of the fourth trochanter in both femora (Pl. 3, Fig. 7; Pl. 4, Figs. 6, 7). The head region is crushed and poorly preserved, and the lesser trochanter is presumably part of the raised area on the anterior surface (Pl. 4, Fig. 8). This femur is very different from those of prosauropods and thecodontians. It is also different from that of the coelurosaurian theropod *Halticosaurus*, the only other saurischian described from the Middle Stubensandstein, in which the lesser trochanter is a free standing process (Pl. 4, Figs. 1—3), and the small fourth trochanter is more distally placed (Pl. 4, Fig. 4). The fourth trochanter of SMNS 51958 (Pl. 4, Figs. 5—7) is in approximately the same position (if regarded as a right femur) as the lesser trochanter of *Halticosaurus* (Pl. 4, Figs. 1—3), but the form is rather different, and there is no prominent insertion area on the medial surface of the lesser trochanter in dinosaurs.

The only femur that resembles SMNS 51958 is the proximal end of a femur from the lower Elliot Formation (upper Carnian or Norian, Upper Triassic, Olsen & Galton 1977, 1984) of South Africa that was described by v. Huene (1906: 131—132, figs. 41, 41, pl. 16, fig. 2, pl. 17, fig. 1) as *?Euskelosaurus*. This femur (Figs. 5D—I, Pl. 5) was included as part of the paralectotype of *Euskelosaurus browni* Huxley 1866 by Cooper (1980: 13, fig. 8), but this is incorrect. The femur of the anchisaurid prosauropod *Euskelosaurus* resembles those of *Sellosaurus* (Pl. 2, Figs. 1, 2; Pl. 3, Figs. 6, 7) in having a ridge-like lesser trochanter and a fourth trochanter at about mid-length (v. Huene 1906, fig. 31; van Heerden 1979, pls. 1, 2, 36—39). As v. Huene (1906) noted, the head is separated by a relatively narrow neck from the shaft (Pl. 5, Figs. 1, 4); the lesser trochanter is represented by a 100 mm long crest that does not terminate in a point (Pl. 5, Figs. 1, 2, 4); the distal end of the pendant fourth trochanter (Pl. 5, Figs. 1, 4) is 340 mm from the proximal end of the femur, so it is very proximally placed (calculated maximum length of bone 900—1000 mm); and the form of the distal condyles (Pl. 5, Figs.. 6—10) differs from those of *Euskelosaurus*. The proximal end (Pl. 5, Fig. 5) measures 215 × 120 mm, the minimum distance from the head to the distal edge of the fourth trochanter (Pl. 5, Fig. 4) is 336 mm, and distally (Pl. 5, Fig. 10) the maximum width and maximum anterior-posterior widths across the inner and outer condyles are 261, 165 and 187 mm, respectively.

The femur differs from those of prosauropods (Pl. 2, Figs. 1, 2, Pl. 3, Figs. 6, 7) and resembles those of coelurosaurian and carnosaurian theropod dinosaurs (Figs. 5N—R, Pl. 4, Figs. 1—4) in having a well defined and medially directed caput femoris (Figs. 5D—F; Pl. 5, Figs. 1—5) which connects to the shaft by a constricted neck region (Fig. 5E; Pl. 5, Figs. 1, 4); in the prominence of the lesser trochanter (Figs. 5D, E; Pl. 5, Figs. 1, 2, 4) that only requires a notch medially to match those of *Halticosaurus* and *Liliensternus* (Fig. 5O; Pl. 4, Figs. 1, 2), and the very proximal position of the fourth trochanter (Fig. 5E; Pl. 5, Figs, 1, 4). In these respects, this femur (Figs. 5D—I; Pl. 5) is more advanced than those of the early theropods *Staurikosaurus* and *Herrerasaurus* (Figs. 5J—M; Galton 1977) in which, apart from the more proximal position of the fourth trochanter, the form is similar to that of prosauropods (Pl. 2, Figs, 1, 2; Pl. 3, Figs. 6, 7). This femur (Figs. 5D—I; Pl. 5)

differs from those of Triassic podokesaurids (Figs. 5N, O; Pl. 4, Figs. 1—‹) and Jurassic theropods (Figs. 5P—R) in lacking a dorsal process to the lesser trochanter (Figs. 5D, E; Pl. 5, Figs. 1, 2, 4) and in having a large and pendant fourth trochanter (Figs. 5E; Pl. 5, Figs. 1, 4). The South African femur represents a new taxon of theropod dinosaur that appears to be more closely related to *Herrerasaurus* and *Staurikosaurus* than it is to Triassic coelurosaurs and Jurassic carnosaurs.

Cooper (1980, 1981) referred the family Herrerasauridae Benedetto 1973 (including Staurikosauridae Galton 1977) to the Prosauropoda. *Herrerasaurus* Reig 1963 is a carnivorous form with a short neck from the Upper Triassic of Argentina (Reig 1963, Benedetto 1973; see Bonaparte 1978, fig. 149 for photograph of mounted skeleton). *Staurikosaurus* Colbert 1970 is a similar form with much more gracile proportions and a more elongate tibia from the Middle or Upper Triassic of Brazil (see Colbert 1970; Galton 1977). Both genera were included in the Prosauropoda by Colbert (1970) and van Heerden (1978); they were regarded as having theropod affinities (though classified as Saurischia *incertae sedis*) by Benedetto (1973) and Galton (1977), and were referred to the Theropoda by Bonaparte (1978). I agree with Bonaparte (1978) in referring both of these genera to the Theropoda and propose the new Infra-order Herrerasauria for their reception.

Infra-order Herrerasauria nov.
Family Herrerasauridae Benedetto 1973

Genus *Herrerasaurus* Reig 1963
Upper Triassic, Argentina.

Family Staurikosauridae Galton 1977

Genus *Staurikosaurus* Colbert 1970
Middle Triassic, Brazil.

Family incertae sedis

Genus *Aliwalia* n. gen.

Type species: *Aliwalia rex* n. sp.
Etymology: Latinization of locality named Aliwal in South Africa.

Diagnosis: as for type and only species.

Aliwalia rex n. sp.

Holotype: Incomplete left femur proximal end NMW 1886—XV—39 and distal end NMW 1876—VII—B124, casts as GPIT, figured by v. Huene (1906, figs. 41, 42; pl. 16, fig. 2; pl. 17, fig. 1) (Figs. 5D—I; Pl. 5).
Etymology: rex = Latin king.
Type locality and horizon. — Assumed to be lower Elliot Formation (upper Carnian or lower Norian, Upper Triassic) at Barnard's Spruit, Ward, 24 km south of Aliwal North, Cape Province, Karoo basin, South Africa. The only data with the specimens is that NMW 1876—XV—39 was donated by Consul Adler of Port Elizabeth, South Africa in 1873 with many other Karoo bones, and that NMW 1876—VII—B124 was donated by Alfred Brown via Consul Adler with 26 other reptile bones. Seeley (1894: 318) noted that Alfred Brown sent four separate collection "of the same animal" of *Euskelosaurus brownii* to Europe, and

these were described by HUXLEY (1866, first London shipment), FISCHER (1870, Paris shipment) and SEELEY (1894, third London shipment). SEELEY (1894) was unable to locate the second London shipment and COOPER (1980) suggested that it may be represented by the material in Vienna. Consequently, it is assumed that ALFRED BROWN collected both ends of the same large theropod left femur, and that it came from the same excavation site as the holotype of *Euskelosaurus brownii* (see above, from SEELEY 1894, see discussion in COOPER 1980).

Diagnosis. — Femur with medially directed head separated from shaft by a well defined neck region, lesser trochanter a prominent crest and fourth trochanter large, pendant shaped and very proximally placed.

Referred specimen. — SEELEY (1894) described a large (more than 40 mm long) left maxilla (BMNH R3301) with replacement teeth in situ that was found at the same excavation site in the lower Elliot Formation as the lectotype femur of *Euskelosaurus brownii*. CHARIG et al. (1965: 206—207) noted that the dental alveoli of this specimen "are broken open and show two fairly well preserved successional teeth which are much broader and less pointed than those of a typical Jurassic carnosaur; they are very compressed labio-lingually with sharp crenulate anterior and posterior margins; and one is slightly recurved, while the apex of the other appears to be directed straught downward." This maxilla is of an appropriate size to go with the holotype femur of *Aliwalia rex* that probably came from the same excavation site so it could be from the same animal. However, it could also be from a rauisuchid thecodontian (OLSEN & GALTON 1984), remains of which are reported from the lower Elliot Formation of South Africa by HOPSON (1984).

Genus and species indeterminate

SMNS 12843 (Pl. 4; Figs. 5—8) is tentatively referred to the same family. The lesser trochanter appears to have been more ridge-like, and the head merges more gradually into the shaft. However, the fourth trochanter is large and very proximally placed.

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Plate 1

Poposaurid thecodontian *Teratosaurus suevicus* v. Meyer, holotype, right maxilla BMNH 38646 from Middle Stubensandstein of Heslach in Stuttgart (see also Figs. 1E, 3A) (v. Meyer 1861, pl. 45, figs. 2, 4).

Figs. 1—3. Lateral views. 1: complete bone, — × 0.5 (v. Meyer 1861, pl. 45, figs. 2,4); 2: tip of dorsal process, — × 0.75; 3: anterior end with part of lateral wall of alveoli removed, — × 0.5 (v. Meyer 1861, pl. 45, fig. 2).

Figs. 4, 5. Medial views. 4: anterior part of lateral wall of alveoli, — × 0.5 (v. Meyer 1861, pl. 45, fig. 1); 5: complete bone, — × 0.5 (v. Meyer 1861, pl. 45, fig. 1).

c = canal; f = foramen; t= replacement tooth.

Scale line represents 4 cm (2) and 6 cm.

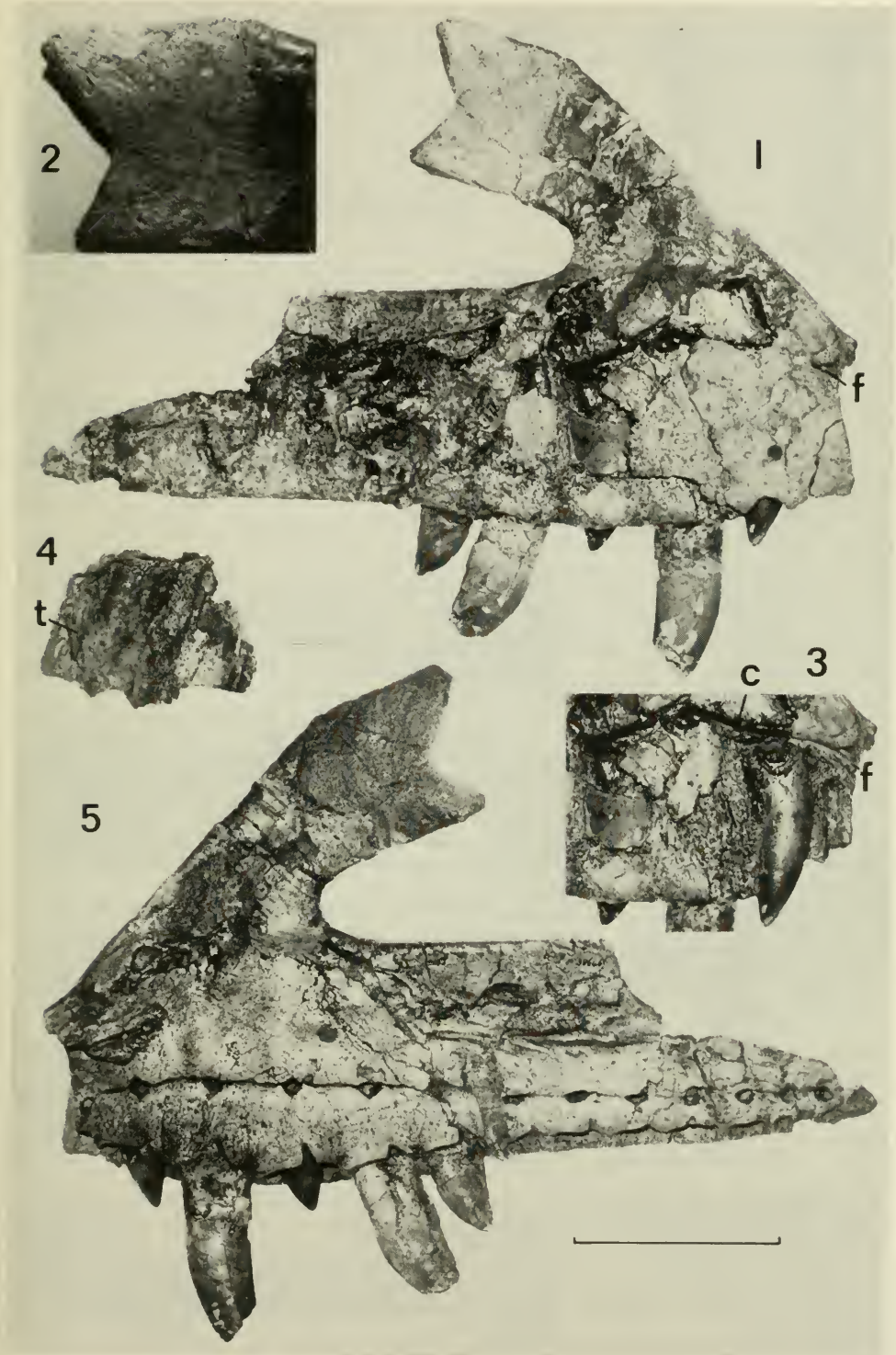

Plate 2

Prosauropod dinosaur *Sellosaurus gracilis,* referred specimen SMNS 11838 from Middle Stubensandstein of Pfaffenhofen, Stromberghöhe, part of holotype of *Teratosaurus minor* v. Huene. — × ⅛.

Figs. 1, 2. Right femur. 1: Anterior view; 2: posterior view (v. Huene 1908, pl. 70, fig. 1).
Figs. 3, 4. Right tibia and astragalus 3: anterior view (Pl. 3, Fig. 22); 4: posterior view (v. Huene 1908, pl. 70, fig. 2).
Figs. 5, 6. Right fibula and calcaneum. 5: medial view; 6: lateral view (v. Huene 1908, pl. 70, fig. 3).
Fig. 7. Right pes in posterior (ventral) view (v. Huene 1908, pl. 69, fig. 2).
Figs. 8, 9. Midcaudal vertebra in lateral view. 8: left side; 9: right side (v. Huene 1908, pl. 69, fig. 4).

Prosauropod dinosaur *Sellosaurus gracilis,* referred specimen GPIT from Middle Stubensandstein of Aixheim near Rottweil, referred to (?) *Teratosaurus suevicus* by v. Huene (1908). — × ¼.

Figs. 10—12. Sacral vertebra 3 with sacral ribs (v. Huene 1908, pl. 64, figs. 3a, b). 10: left lateral view; 11: anterior view; 12: dorsal view.

Prosauropod dinosaur *Sellosaurus gracilis,* referred specimen GPIT 18064 from Middle Stubensandstein of Trossingen near Rottweil, part of holotype of *Teratosaurus trossingensis* v. Huene 1908.

Fig. 13. Incomplete right pes in anterior (dorsal) view (v. Huene 1908, fig. 186). — × ⅛.
Figs. 14, 15. Right metatarsal V, — × ¼. 14: anterior (dorsal) view; 15: lateral view.

Scale lines represents 5 cm (10—12, 14, 15) and 10 cm.

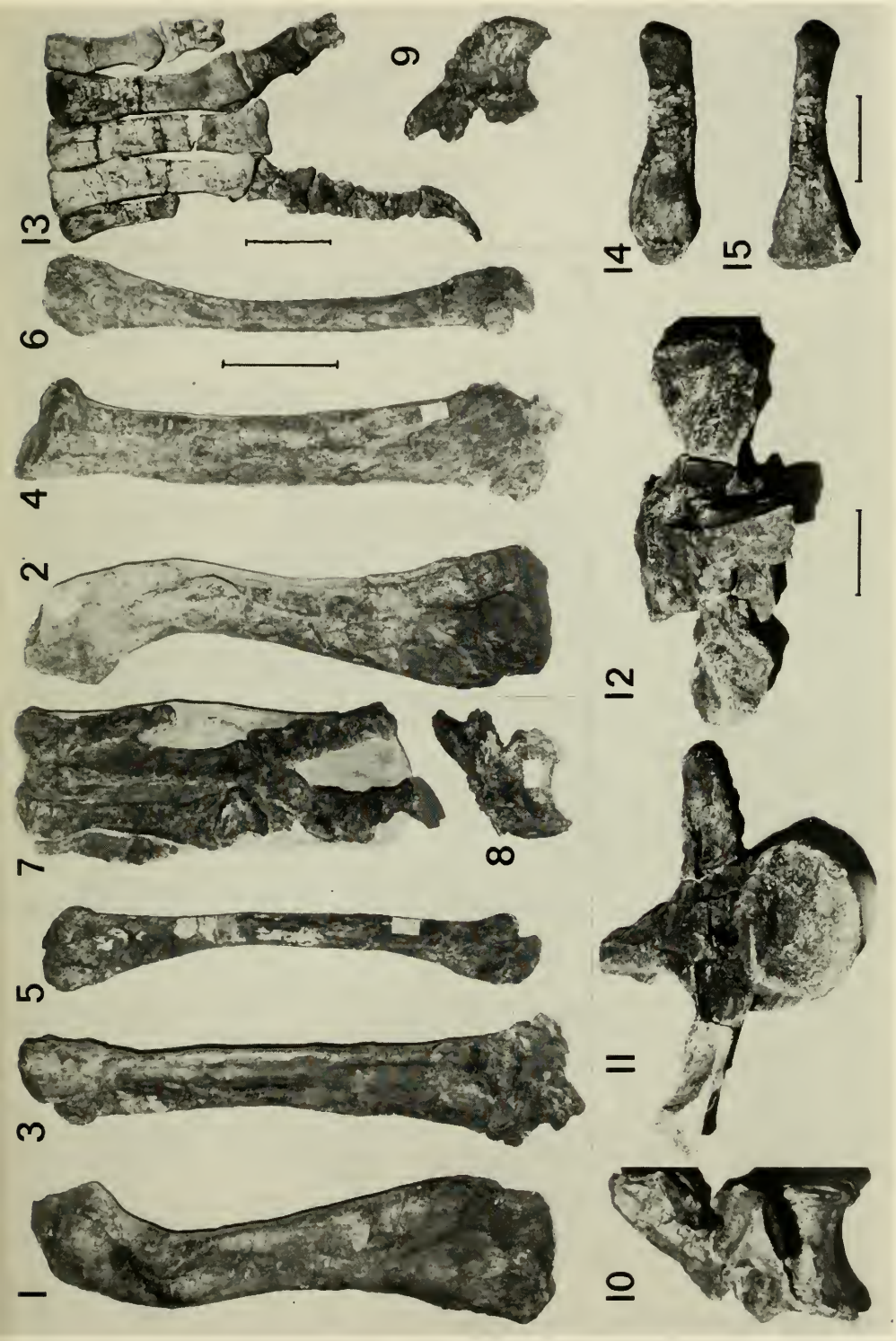

Plate 3

Prosauropod dinosaur *Sellosaurus gracilis*, referred specimen SMNS 12843 from Middle Stubenstandstein of Pfaffenhofen, referred to *Teratosaurus minor* by v. Huene (1932). — × ⅐.

Fig. 1. Left scapula and coracoid in lateral view (v. Huene 1932, pl. 9, fig. 1).
Fig. 2. Incomplete right scapula and coracoid in lateral view (v. Huene 1932, pl. 9, fig. 2).
Figs. 3, 4. Right humerus (v. Huene 1932, pl. 9, figs. 3a, b). 3: anteromedial view; 4: posterolateral view.
Fig. 5. Left ischium in lateral view (v. Huene 1932, pl. 10, fig. 10).
Figs. 6, 7. Right femur (v. Huene 1932, pl. 10, figs. 1a, b). 6: lateral view; 7: medial view.
Figs. 8, 9. Left tibia. 8: Lateral view (v. Huene 1932, pl. 10, fig. 2); 9: medial view.
Figs. 10, 11. Left fibula (v. Huene 1932, pl. 10, figs. 3a, b). 10: lateral view; 11: medial view.
Fig. 12. Left metatarsal III in anterior view (v. Huene 1932, pl. 20, fig. 4a as II).
Fig. 13. Left metatarsal IV in anterior view (v. Huene 1932, pl. 10, fig. 6).
Fig. 14. Left metatarsal II in anterior view (v. Huene 1932, pl. 10, fig. 4b).
Fig. 15. Phalanges from left digit IV in anterior (dorsal) view (v. Huene 1932, pl. 10, fig. 8).
Figs. 16, 17. End phalanges from left digit II. 16: medial view; 17: lateral view (v. Huene 1932, pl. 10, fig. 7).
Fig. 18. Dorsal vertrebra in dorsal view (v. Huene 1932, pl. 10, fig. 11).

Prosauropod dinosaur *Sellosaurus gracilis*, referred specimen GPIT 18064 from Middle Stubensandstein of Trossingen, part of holotype of *Teratosaurus trossingensis* v. Huene 1908. — × ¼.

Figs. 19—21. Right astragalus (v. Huene 1908, figs. 182a—c). 19: anterior view; 20: dorsal view; 21: posterior view.

Prosauropod dinosaur *Sellosaurus gracilis*, referred specimen SMNS 11838 from Middle Stubensandstein of Pfaffenhofen, Stromberghöhe, part of holotype of *Teratosaurus minor* v. Huene 1908. — × ⅓.

Fig. 22. Distal end of tibia with astragalus in anterior view (Pl. 2, Fig. 3).

a = ascending process; c = insertion area of M. caudi-femoralis longus; f = fourth trochanter; l = lesser trochanter.

Scale lines represent 5 cm (19—22) and 10 cm.

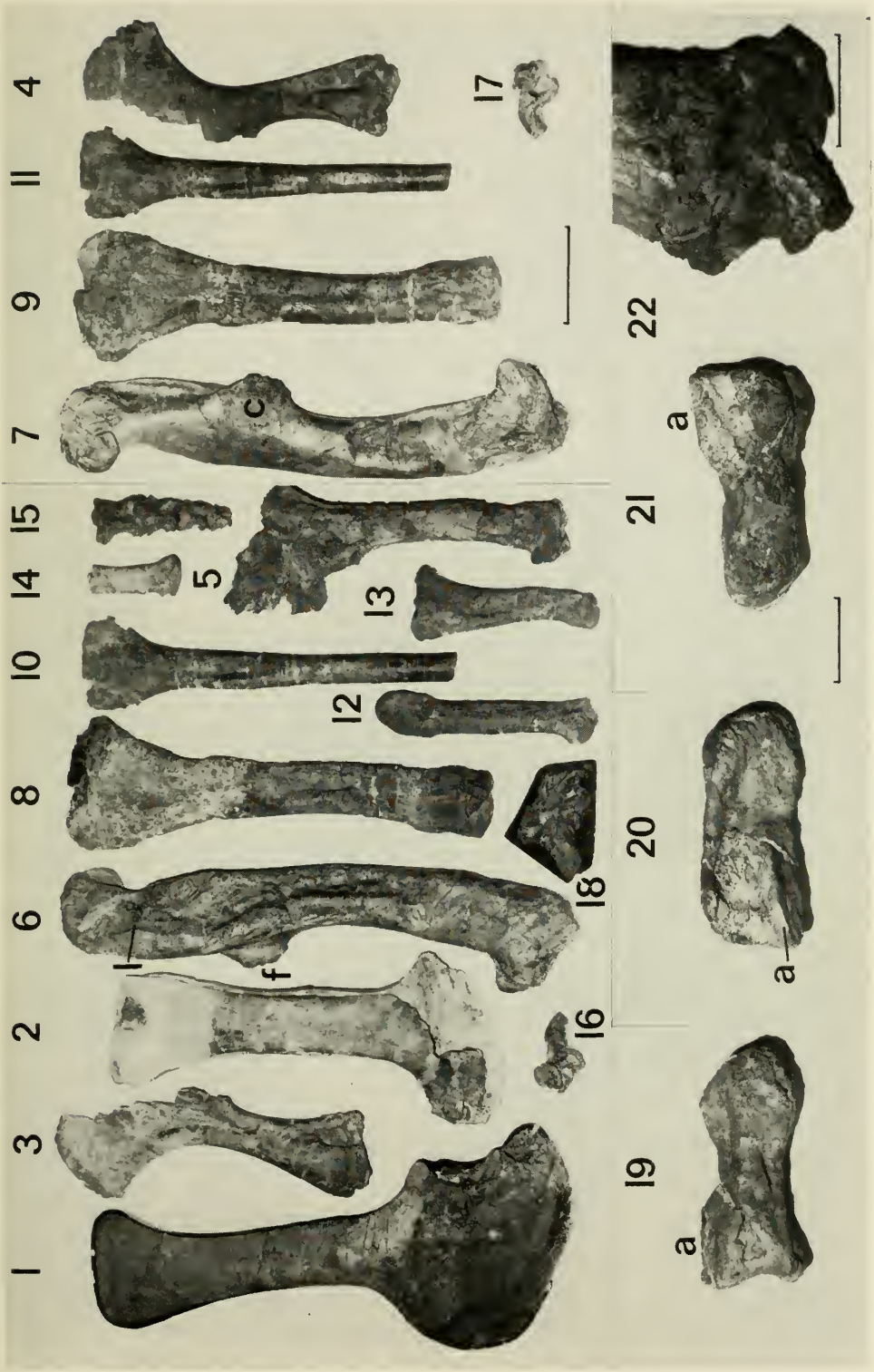

Plate 4

Coelurosaurian theropod dinosaur *Halticosaurus longotarsus* v. Huene 1908, part of holotype SMNS 11839 from Middle Stubensandstein of Pfaffenhofen, Stromberghöhe. — × ½ approx.

Figs. 1—3. Proximal end of right femur (v. Huene 1908, pl. 97, figs. 1a—c). 1: lateral view; 2: medial view; 3: anterior view.

Fig. 4. Middle part of left femur in posterior view (v. Huene 1908, pl. 97, fig. 2).

? Theropod dinosaur, SMNS 51958 from Middle Stubensandstein of Pfaffenhofen, Stromberghöhe, originally included as part of SMNS 12843 (Pl. 3, Figs. 1—18) and referred to *Teratosaurus minor* by v. Huene (1932). — × ¼.

Figs. 5—8. Left femur. 5: lateral view; 6: posterior view; 7: medial view; 8: anterior view.

c = insertion area of M. caudi-femoralis longus; f = fourth trochanter; h = head; = lesser trochanter.

Scale lines represent 5 cm.

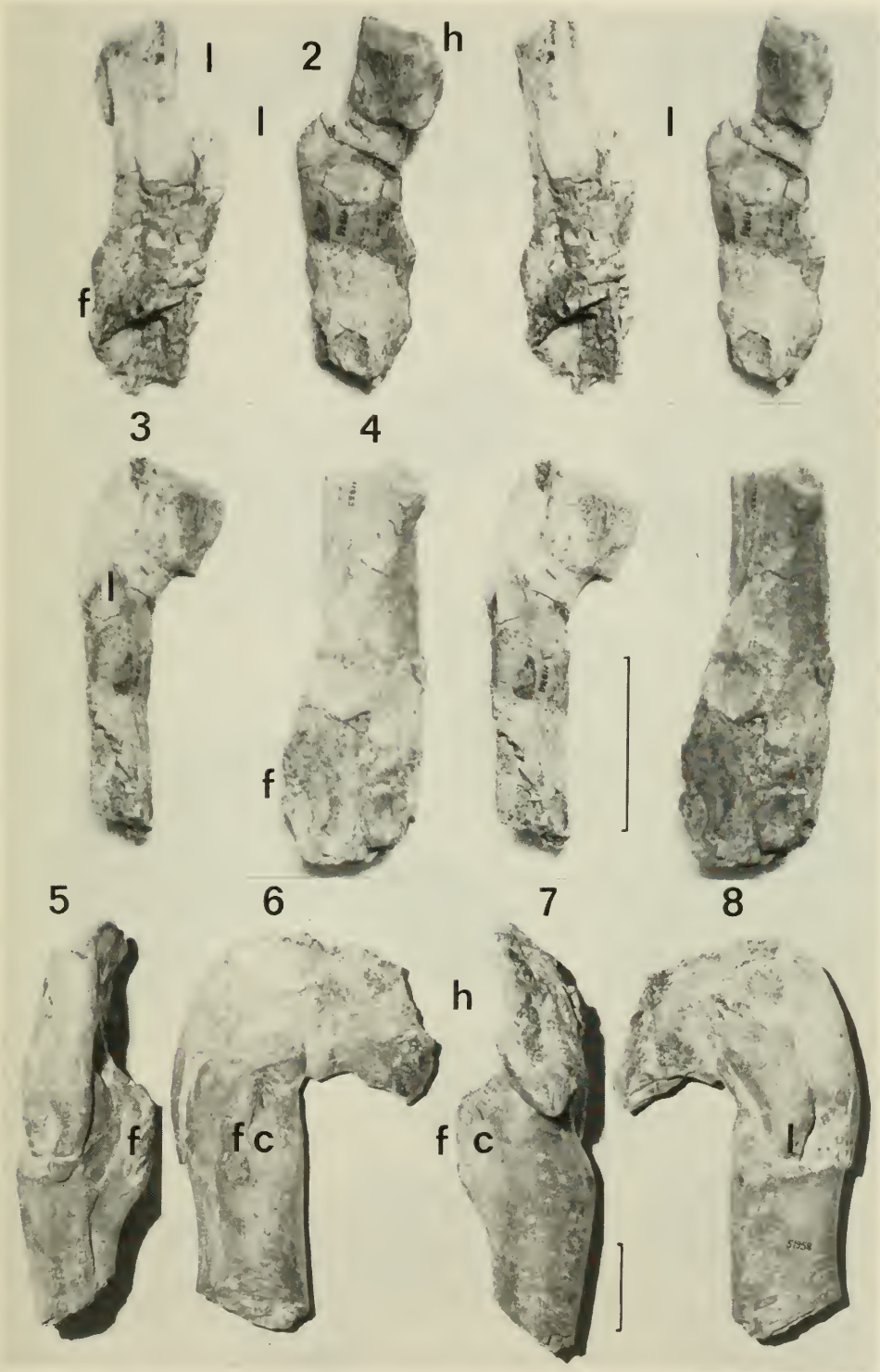

Plate 5

Herrerasaurian theropod dinosaur *Aliwalia rex* n. g. et n. sp., holotype incomplete left femur from lower Elliot Formation (Upper Triassic) of South Africa.

Fig. 1—5. Proximal end, NMW 1889—XV—39. 1: lateral; 2: anterior; 3: posterior; 4: medial and 5: proximal views.

Figs. 6—10. Distal end, NMW 1876—VII—B124. 6: lateral view; 7: anterior view; 8: posterior view; 9: medial view and 10: distal view.

a = anterior intercondylar groove; f = fourth trochanter; g = greater trochanter; h = head; i = inner condyle; l = lesser condyle; o = outer condyle.

Scale lines represent 10 cm (1—4, 6—9 approx. × 0.2; 5, 10 approx. × 0.15).