Dinosaur Tracks from Peace River, British Columbia

By C. M. Sternberg
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CONTENTS

Introduction .................................................. 59
Age and environment ........................................ 60
Systematic descriptions ....................................... 61

Illustrations

Plate I. Trackways of Irenesauripus mcearni .......................... 77
II. Irenesauripus mcearni ........................................... 79
III. 1. Irenesauripus occidentalis ................................. 81
2. Irenesauripus acutus ........................................... 81
3. Colombosaurus ungulatus ...................................... 81
IV. 1. Gypsinichites pacensis ....................................... 83
2. Cast of Amblydactylus gethingi ............................... 85
V. 1. Trackways of Tetrapodaurus borealis ...................... 85
2. Cast of Tetrapodaurus borealis ............................... 85

Figure 1. Irenesauripus mcearni ................................... 63
2. Irenesauripus acutus ........................................... 64
3. Irenesauripus occidentalis .................................... 66
4. Colombosaurus ungulatus ...................................... 67
5. Irenichites gracilis ............................................ 69
6. Gypsinichites pacensis ......................................... 70
7. Gypsinichites pacensis ......................................... 71
8. Amblydactylus gethingi ........................................ 73
9. Tetrapodaurus borealis ......................................... 75

INTRODUCTION

The first dinosaur track to be observed in North America, and probably the first observed anywhere, was ploughed up by Pliny Moody, near South Hadley, Mass., in 1800.1 Dinosaurs were unknown at that time and young Moody regarded the impression as representing the track of Noah’s raven. The earliest scientific description of dinosaur tracks in North America was published by Prof. Edward Hitchcock, in 18362, when he described and figured a number of imprints from Triassic rocks of the Connecticut valley, as Ornithichites or stony bird tracks. The first discovery of Canadian dinosaur tracks was made in 1912, in Peace River canyon, B.C., by F. H. McLean, and was mentioned by him in the Summary Report of the Geological Survey, Canada, for that year (part B, page 5). These are the most northerly dinosaur tracks known to the writer. The only dinosaur tracks in Canada that have been fully described are from the Edmonton formation of Alberta, described by the writer3 as Ornithomimipus angustus.

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It is puzzling why such a field as that of the Edmonton and Belly River formations, along Red Deer river, Alberta, which has yielded so many well-preserved skeletons of dinosaurs, has afforded only one specimen of tracks, whereas the Connecticut valley, from which thousands of dinosaur tracks have been collected, has yielded very few skeletal remains. In the new, Peace River field, likewise, tracks and osseous remains are not equally mingled, for though more than four hundred dinosaur tracks were observed not even a fragment of bone was found.

During the field season of 1930, the writer investigated the Peace River Canyon locality and collected specimens that would make suitable exhibits for the National Museum of Canada. In other cases plaster moulds were taken of the tracks or the trackways.

The writer is indebted to Mr. Neil Gething and his sons, of Hudson Hope, B.C., who rendered valuable assistance. Mr. Gething was with Mr. McLearn when the original discovery was made and has since located other tracks and has done valuable work in protecting them from destruction. Miss Alice E. Wilson has given valuable assistance in devising generic and specific names used in the following account and Mr. A. Miles made the drawings that illustrate it.

AGE AND ENVIRONMENT

Peace River canyon in many places has precipitous walls and the gorge is very narrow. From the head of the canyon, about 12 miles west of Hudson Hope, B.C., the river falls 272 feet before reaching the lower end of the canyon at Hudson Hope. In the upper half of the canyon the river has cut through the coal-bearing or Gething member of the Bullhead Mountain formation. The beds dip at angles of 7 to 15 degrees to the south and southwest, and as a result of their attitude and the direction followed by the river several hundred feet of the strata are visible along the floor of the canyon. These beds at times of high water are covered, but at low water they are revealed as rock shelves some of which are 100 feet or more wide. On these rock shelves more than four hundred dinosaur tracks were observed.

McLearn has correlated these beds with the lower Blairmore1 of about middle Lower Cretaceous age. At the 1930 meeting of the Paleontological Society of America, McLearn, in a short paper on the environment of the tracks, stated: "The sandstone layers have ripple-marks, chiefly of the symmetrical (wave) type. The shale beds have mud-cracks. They are interpreted as the deposits of shallow flood-plain lakes whose bottoms were exposed as mud flats at times of low water. It was across these flats that the tracks were made." Extensive peat bogs were present and at certain periods deposition must have been very slow, for there are a number of beds of clean, semi-bituminous coal, one of which, the Grant seam, is nearly 6 feet thick.

Dinosaur tracks were observed at various horizons, from the Riverside seam2 upward through more than 500 feet of strata, and for a distance of about 3 miles along the river. Time did not permit an examination of the

upper part of the canyon. In some cases the imprints are on thin-bedded, ripple-marked sandstone, whereas in other cases they are on massive, clay-ironstone beds. In places upright stems or roots of plants are very numerous in the stratum on which the tracks are preserved. Many of the clay beds show mud-cracks. On some of the strata tracks are quite numerous, whereas at other horizons only an occasional imprint is visible, but as the exposed area of many of the horizons is small no significance may be attached to this condition. Several long trackways are visible and along some of these the character of the surface or the indicated speed of travel of the animal is quite different at the two ends of a trackway.

In the early days of the study of fossil footprints, species were sometimes described which differed from other species mainly or solely in size of imprint, length of stride, and width of trackway. Study of the Peace River tracks seems to show that these characters alone are not always diagnostic. Though a great difference in size may as a rule be sufficient reason for specific differentiation, yet the tracks of one species about to be described vary from 11 to 16 inches in length. Although a relatively long stride does, of course, indicate a long-legged animal, it is also true that the length of stride and the width of trackway have a definite relation both to the speed of travel of the animal and to the nature of the travelled surface. In several trackways at horizons below the Grant seam (Gething's mine), Peace River canyon, the mud was so soft that the dinosaur sank deeply into it and when the foot was withdrawn the mud so closed in that only saucer-like depressions remained. In these trackways the tracks are wide apart and the stride much shorter than is usual where the surface was more solid. In one trackway (See Figure 5) the stride progressively shortens from 31 to 27 inches. In another trackway of the same species and size of track, the stride is only 21 inches. In still another trackway, consisting of sixteen imprints, the tracks for the greater part of the trackway are in almost a direct line and the average stride is 37 inches. Three of the imprints, however, indicate a rather sudden stopping, and there the trackway is wider and the stride only 26½ inches (See Plate II).

SYSTEMATIC DESCRIPTIONS

Some early students attempted to correlate footprints with the osseous remains, but Hay and Lull study tracks without attempting to correlate species of tracks with species of animals, even where they are quite confident as to which animal made the tracks. The latter course is the better, for seldom can one be certain of the nature of the animal that made the tracks. In fact in the case of dinosaur tracks it is not always certain to which order of dinosaurs the animal that made the tracks belongs. Lull proposed (Loc. cit.) eight families to include the Connecticut Valley ichnites. It seems unwise, at this time, to propose more new families than are absolutely necessary and, therefore, in the following account most of the genera are tentatively referred to one or another of Lull's families, though it is fully recognized that in some cases they do not entirely correspond with the family characters as given by Lull.

Genus, Ireneosauripus<sup>1</sup> new genus

Genotype, Ireneosauripus mcalerni new species

Generic Characters. Large; semidigitigrade; functionally tridactyle; toes well separated; heel of variable width, but always completely impressed; weight borne equally by the three toes and the metatarsal pad; phalangeal pads not well defined; claws acuminate; no manus or caudal impressions.

This genus is tentatively referred to Lull's family Gigantidipodidae, though it fails to meet all the requirements as given by Lull in that there is no impression of the hallux or the tail. The hallux had probably moved up on the foot sufficiently to leave no impression. The caudal trace is not always present in the Triassic forms.

Tracks of this genus were probably made by some of the larger carnivorous forms.

*Ireneosauripus mcalerni*<sup>2</sup> new species

Plates I and II; and Figure 1

Type. Cat. No. 8548, Geol. Surv., Canada, consists of a slab with the last three tracks of a trackway of sixteen impressions.

Locality and Horizon. Peace River canyon, north side, about 2 miles upstream from Gething's mine, on a stratum 290 feet above Grant seam, Gething member of Bullhead Mountain formation.

Description. Tracks of this species are the most numerous of all those in Peace River canyon and were observed at various horizons from below the Grant seam to well above the horizon from which the type was collected. The tracks vary from 11 to 16 inches in length. Normally they are almost in a direct line and the stride is approximately three times the length of the track, but these characters vary with the nature of the surface and the speed of the animal.

The longest stride in the trackway of sixteen tracks, of which the type specimen is a part, was 1,065 mm. and the average 940 mm. In that part of the trackway not collected the imprints were almost in a direct line; in that part collected (the type), the animal appears to have halted rather suddenly, with the result that the stride is much shorter, the tracks are wider apart, and more weight was thrown on the heel. In this, as well as in another trackway of this species (Plate I), there is a depression at the back of the imprint that appears to have been made by the dragging of the central toe as the foot was coming to rest. In other trackways of this species this "drag" is not shown.

The weight was borne equally by the three toes and the metatarsals pad or the so-called heel. The heel is moderately narrow. The toes are separated well back and there is no indication of a web or extensive pad. They taper gradually from near the proximal ends and terminate in rather sharp claws.

Greatest length of track, from posterior edge of centre of heel to tip of digit III, 380 mm.; from posterior edge of heel to tip of digit II, 292 mm.; from same point to tip of digit IV, 280 mm. Greatest breadth of track 318 mm. Divarication of digits II and III, 37 degrees; of III and IV, 33 degrees.

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<sup>1</sup>Saurian or lizard foot of Peace River country.

<sup>2</sup>This species is named in honour of Mr. F. H. McLean, who discovered the tracks.
Irenesauripus acutus new species
Plate III, figure 2; and Figure 2

Type. Cat. No. 8549, Geol. Surv., Canada, consists of plaster cast of right pes imprint (See Figure 2) from trackway of six tracks.

Locality and Horizon. Peace River canyon, north side, about 1½ miles upstream from Gething’s mine, on a stratum 216 feet above Grant seam, Gething member of Bullhead Mountain formation.

Description. These tracks, the only ones observed of this species, are on a massive bed of clay-ironstone. It was not feasible to collect the original imprints, so a plaster mould was taken from which an exact reproduction of the track was made.

![Figure 2. Irenesauripus acutus; type, Cat. No. 8549, Geol. Surv., Canada; one-eighth natural size.](image)

The imprint is large; roughly triangular; the heel is very narrow; the digits are long, slender, straight, and of nearly uniform width throughout; digits II and III are quite deeply impressed. The digits are more slender, the whole track more angular, and the heel narrower than in I. mclearni. Digit IV is more widely separated from III than is II. The tracks are almost in a direct line and the stride is 1,730 mm., which would suggest a rather long-legged animal.

Greatest length of track, from posterior edge of centre of heel to tip of digit III, 535 mm.; from same point to tip of digit II, 405 mm.; to tip of digit IV, 415 mm. Greatest breadth, between outer edges of digits II and IV, 400 mm. Divarication of digits II and III, 18 degrees; of III and IV, 40 degrees.

Figure 2, Plate III, is from a photograph of a different track of the same trackway. The two tracks differ in the depth of the heel impression and the divarication of digits III and IV. It is quite probable that in the track of which the cast was made digit IV is spread more than is normal.
Irenesauripus occidentalis new species

Plate III, figure 1; and Figure 3

_Type._ Cat. No. 8550, Geol. Surv., Canada, consists of trackway of four large tracks.

_Locality and Horizon._ Peace River canyon, north side, about 1 1/2 miles upstream from Gething's mine, on a stratum 262 feet above Grant seam, Gething member of Bullhead Mountain formation.

_Description._ Tracks large; heel broad; toes narrow but well spread; stride short; trackway moderately broad. Greatest length of track, from centre of posterior edge of heel to tip of digit III, 500 mm., from same point to tip of digit II, 400 mm.; to tip of digit IV, 400 mm. Breadth of track, across digits II and IV, 465 mm. Divarication of digits II and III, 33 degrees; of III and IV, 40 degrees. Length of stride 960 to 1,000 mm.

These tracks are preserved on very fine-grained, thin-bedded, ripple-marked sandstone. The impressions are shallow. The shortness of the stride and the width of the trackway may be partly due to slow movement of the animal when making the tracks.

Genus, COLUMBOSAURIPUS new genus

Genotype, Colombosaurus unguulatus new species

_Generic Characters._ Small; bipedal; semidigitigrade; functionally tridactyle; toes well spread and carrying the main weight; proximal ends of toes enclosed in pad or web; digit II not cut away from metatarsal pads; toes tapering and terminating in long, sharp claws; heel well rounded; phalangial pads not well shown.

This genus might be correlated with one of the smaller carnivorous forms. It is tentatively referred to the family Grallatoridae established by Lull (Loc. cit.).

_Columbosaurus unguulatus_ new species

Plate III, figure 3; and Figure 4

_Type._ Cat. No. 8551, Geol. Surv., Canada, consists of one original imprint of left (?) pes.

_Locality and Horizon._ Peace River canyon, north side, about 1 1/2 miles upstream from Gething's mine, on a stratum 213 feet above Grant seam, Gething member of Bullhead Mountain formation.

_Description._ This imprint shows very good detail, but no distinct phalangial pads. The digits are distinctly separated in their distal halves. The pads of the proximal phalanges and the metatarsals seem to have been merged into one big pad, as there is no sign of separation between them. The heel is broadly rounded, but only faintly impressed. The

*This generic name signifies the foot of a marsupia from British Columbia.*
digital impressions to near their distal ends taper very gradually, beyond
this they narrow abruptly and terminate in long, vertical slits, which must
have been made by long, narrow claws.

The total length of the track, measured from the posterior edge of the
centre of the heel to the tip of the central toe, is 125 mm.; greatest breadth,
across digits II and IV, 125 mm.; centre of heel to tip of digit II, 95 mm.;
same point to tip of digit IV, 100 mm. Divarication of digits II and III,
38 degrees; of III and IV, 39 degrees.

Figure 4. *Columbosauripus ungulatus*: type, Cat. No. 8551, Geol. Surv., Canada;
one-half natural size.

**Genus, Irenichnites new genus**

**Genotype, Irenichnites gracilis** new species

**Generic Characters.** Functionally bipedal; tridactyle; digitigrade;
digits well spread, not bound together by pad, and of uniform breadth
throughout; claws blunt; digit II cut away from rest of foot; phalangial
pads faintly shown; heel impression not complete; tracks small; stride
relatively long; trackway narrow.

Because of the digitigrade pose, the blunt termination, wide diver-
gence, and uniform breadth of the digits, this genus is tentatively referred
to the family Anomoepodidae (Lull, 1904). It is realized that the long
stride, narrow trackway, and complete absence of the hallux are features
of considerable importance, and in which this genus differs from Anomoepus
and its allies. It cannot, however, be better referred to any other family
which has yet been proposed.
Irenichnites gracilis new species

Figure 5

Type. Cat. No. 8552, Geol. Surv., Canada, consists of a trackway of five tracks. Paratype: trackway of three tracks on slab, Cat. No. 8558, Geol. Surv., Canada.

Locality and Horizon. Peace River canyon, north side, about 2 miles upstream from Gething's mine, on a stratum 290 feet above Grant seam, Gething number of Bullhead Mountain formation.

Description. The heel pad is not completely developed; the impression of digit II is separate from that of the rest of the foot; the toes are of uniform breadth and terminate in blunt claws. The tracks are relatively short and broad. One shows faint impressions of phalangeal pads in digits III and IV. Tracks of this species were observed at several horizons about midway in the section of track-bearing strata, and in all cases the size and shape of the tracks were the same as of those chosen as the type. The tracks are approximately in a direct line, and the stride is relatively long. In the type the stride varies from 790 mm. to 670 mm., and in the paratype is only 535 mm. This shorter stride is longer in proportion to the length of the track than in the case of the other species here described. This would suggest a very long-legged animal. All digits terminate in blunt claws, which are not deeply impressed.

The greatest length of the track, measured from the posterior edge of the heel to tip of digit III, is 150 mm.; from same point to tip of digit II, 118 mm.; to tip of digit IV, 130 mm.; length of impression of digit II, 76 mm.; average breadth of digits, 20 mm.; greatest breadth of track, 165 mm. The divarication varies somewhat, but in the central track of the series, which shows the best detail, the divarication of digits II and III is 38 degrees, of III and IV, 40 degrees.

Genus, GYPSICHNITES ¹ new genus

Genotype, Gypsichnites pacensis new species

Generic Characters. Bipedal; semidigitigrade; tridactyle; heel broadly rounded and complete; foot short and broad; toes broad, partly enclosed in pad or web, and terminating in bluntly pointed hoofs.

Because of the broad toes terminating in pointed hoofs, this genus is tentatively referred to Lull's family Eubrontidae. If Lull is correct in assigning this family to the suborder Theropoda², the present assignment is probably not justified for, in all probability, Gypsichnites represents the tracks of a bipedal herbivorous dinosaur. These tracks might well have been made by a Comptosaurus-like form.

Tracks of this genus were observed below the Grant seam, as well as at the horizon from which the type and paratype were collected.

¹The generic name signifies Cretaceous stony tracks.
Figure 5. *Irenichnites gracilis*; type, Cat. No. 8552, Geol. Surv., Canada; one-sixteenth natural size.
Gypsichnites pacensis new species

Plate IV, figure 1; and Figures 6 and 7

Type. Cat. No. 8553, Geol. Surv., Canada, consists of one track. Paratype: Cat. No. 8554, Geol. Surv., Canada, consists of two tracks.

Locality and Horizon. Peace River canyon, north side, about 2 miles upstream from Gething's mine, on a stratum 290 feet above Grant seam, Gething member of Bullhead Mountain formation. Paratype, same locality and horizon.

Figure 6. Gypsichnites pacensis; type, Cat. No. 8553, Geol. Surv., Canada; one-fourth natural size.

Description. The type (Plate IV, Figure 1, and Figure 6) shows very good outline, but no phalangial pads. All the toes are very broad and end in bluntly pointed hoofs. Digits II and IV are strongly divergent, point outward at their distal ends, but are free for only about one-half of their length. The proximal portions of the toes were doubtless enclosed in a pad or web. In the type, digit III is more deeply impressed than the others, but in the paratype the three toes seem to have carried the weight about equally. Digit III is broadest near the distal extremity, whereas the others taper gradually. In the type, a poorly preserved second track indicated a stride of 915 mm., or slightly more than three times the length of the track. In the paratype, the length of the stride relative to the length of the tracks is slightly greater. The tracks are almost in a straight line, but point slightly outward from the line of march.
Figure 7. *Gypeichnites pacensis*; paratype, Cat. No. 8654, Geol. Surv., Canada; one-twelfth natural size.
In the case of the type: the greatest length of the track, measured from the posterior edge of the heel to the tip of digit III, is 290 mm.; the greatest breadth, across digits II and IV, is 282 mm.; the greatest breadth of digit III is 76 mm.; and that of the heel, at 40 mm. from the posterior edge, is 160 mm.; from the centre of the posterior edge of the heel to tip of digit II is 210 mm.; to tip of digit IV, 210 mm.; the divergence of digits II and III is 40 degrees, of III and IV, 44 degrees.

**Genus, Amblydactylus new genus**

**Genotype, Amblydactylus gettingi new species**

**Generic Characters.** Very large; bipedal; tridactyle; foot very broad; toes broad and short, with proximal ends enclosed in web or pad and terminating in pointed hoofs or blunt claws.

This genus is tentatively referred to Lull's family, Eubrontidae. It seems most likely that tracks of this genus were made by a large, bipedal, herbivorous dinosaur, though there is no known American form that would make such a track. The tracks are too large to have been made by Compsosaurus, and the hoofs are much too pointed for a member of the Hadrosauridae. It more nearly resembles the tracks from the Wealdon of Europe^1^, which are regarded as those of Iguanodon.^2^

Shuler has described, from the Lower Cretaceous, Glen Rose limestone of Texas, the tracks of a large, bipedal dinosaur under the name *Eubrontes* (?) *titanopelopatidus*.^3^ To the writer the Texas specimens more closely resemble the genus here described than the Triassic Genus *Eubrontes*, though both the track as a whole and the toes are proportionately longer than in *Amblydactylus*.

Mr. C. N. Strevell, of Salt Lake City, Utah, has kindly sent the writer photographs of dinosaur tracks that were collected from the roof of a coal mine in Utah, and whose age is given as later Cretaceous. Mr. Strevell refers to these tracks as *Dinosaururopodides*, though it is believed no description of them has been published. One of these tracks, which he refers to as *Dinosaururopodides magravii*, rather closely resembles the genotype of *Amblydactylus* in its anterior portion, but is very much longer and there is a suggestion of the presence of a fourth toe.

**Amblydactylus gettingi new species**

**Plate IV, figure 2; and Figure 8**

**Type.** Cat. No. 8555, Geol. Surv., Canada, consists of a plaster cast of one (?) right) track.

**Locality and Horizon.** Peace River canyon, north side, about one-fourth mile upstream from Gething's coal mine (Grant seam), Gething member of Bullhead Mountain formation.

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^4^ The generic name signifies blunt hoof. The species is named in honour of Mr. Neil Gething.
Description. The track is deeply impressed, very large, and almost as broad as long; the toes are very broad, extend only a short distance beyond the web or pad, and terminate in pointed hoofs; there is no sign of a fourth toe; the distal half of digit III is at a higher level than the side toes and the sole of the foot; the heel is short, moderately narrow, and well impressed.

Figure 8. Amblydactylus geisingi; type, Cat. No. 8555, Geol. Surv., Canada; one-twelfth natural size.

There is no evidence of separate phalangial pads. Digit II is not cut away from the metatarsal or heel pad. Posterior to the depression of the heel the rock slopes upward and backward. This may represent the impression of part of the posterior edge of the metatarsals, which were not carried perpendicular above the phalanges.

Greatest length of track, from posterior edge of heel to tip of digit III, 640 mm.; greatest breadth, 590 mm.; from centre of heel to tip of digit II, 560 mm.; to tip of digit IV, 535 mm. Divarication of digits II and III, 32 degrees, of III and IV, 24 degrees.

Family, Tetrapodosauridae new family

Family Characters. Habitually quadrupedal; medium sized; bluntly pointed hoofs; trackway wide; stride short; no caudal impression.

Tracks of this family were doubtlessly made by quadrupedal, predentate dinosaurs.

Genus, Tetrapodosaurus new genus

Genotype, Tetrapodosaurus borealis new species

Generic Characters. Quadrupedal; toes enclosed in pad or web; manus impressions in front of and completely separated from those of the pes; manus short and broad, five toes, digitigrade; pes of medium length, semiplantigrade, with four toes.

Tracks of this genus were observed at only one horizon. They may well have been made by an ancestor of one of the Upper Cretaceous Cera-topsia.
*Tetrapodosaurus*³ borealis new species  

Plate V; and Figure 9  

**Type.** Cat. No. 8556, Geol. Surv., Canada, consists of a cast of six tracks (two manus and two pes of left side and one each from right side).  

**Locality and Horizon.** Peace River canyon, north side, about 1½ miles upstream from Gething's mine, on a stratum 216 feet above Grant seam, Gething member of Bullhead Mountain formation.  

**Description.** There were fourteen tracks in this trackway (seven of manus and seven of pes), but casts were made of only six of these. Better detail is shown in the pes than in the manus.  

The manus is ahead of and completely separated from the pes. It is very short and broad. There appear to be five toes, though in some of the tracks only three are well outlined, probably due to inequality in the length of the toes and the nature of the surface over which the animal walked. In the Upper Cretaceous Ceratopsia only the three inner toes bore hoofs, and digits IV and V probably did not appear beyond the sole pad. The outer toes of the animal that made these tracks may have been too short to make an impression if the weight were thrown on the inside of the foot. The toes were enclosed in a large pad, except for the distal extremity which was free. This pad seems to have enclosed only the digits, differing from that of the pes, in which a metatarsal pad formed the posterior portion of the track. Greatest length of manus, 215 mm.; greatest breadth, 290 mm. The divarication of the toes is much greater in the manus than in the pes, that of the outer toes being more than 180 degrees. Divarication of digits I and II, 73 degrees; of II and III, 42 degrees; of III and IV, 33 degrees; of IV and V, 50 degrees.  

The pes is longer than broad and much of the weight was borne by the metatarsal pads. All the phalangial and metatarsal pads appear to have been fused into one mass. The toes extend only a short distance beyond the pad and terminate in small, rounded hoofs. The distal ends of most of the toes are slightly more deeply impressed than the sole of the foot, as is indicated in the drawing (Figure 9) by a dotted line. The posterior outline of the track is not well defined, but the drawing shows the writer's interpretation after a study of all the imprints of this trackway and of those of another trackway at the same horizon and locality. There are four toes, and the outer one (? IV) is more divergent than the others. At the posterior edge of some of the tracks are triangular depressions, probably made by the dragging of the hoofs as the foot was coming to rest.  

Greatest length of pes, measured from the posterior edge of the heel to the tip of digit III, 338 mm.; from same point to tip of digit I, 256 mm.; to tip of II, 328 mm.; to tip of IV, 284 mm. Divarication of digits I and II, 14 degrees, of II and III, 21 degrees, of III and IV, 32 degrees. The above divarication was measured on what is regarded as the best impression. Perhaps better tracks would show a slight variation.  

The trackway is 810 mm. wide. The length of step, from tip to tip of digit III of the left pes, is 1,320 mm.  

³*Tetrapodosaurus* borealis on Plate V should be *Tetrapodosaurus* hyperlesis.
Trackways of *Ireodontopus* calesauri, Peace River canyon, B.C., about 2 miles upstream from Gothee's mine. More than one hundred and sixty dinosaur tracks, including the types of three species, were observed on this rock shelf.
Ireneostephanus meteori; type, Cat. No. 8518, Geol. Surv., Canada; \( \frac{3}{4} \) natural size.
Figure 1. Irenesauripus occidentalis; type, in situ, Peace River canyon. Note the thin-beded, ripple-marked sandstone.

Figure 2. Irenesauripus acutus, photographed from type trackway; 1/2 natural size.

Figure 3. Columbosauripus angulatus; type, Cat. No. 8251, Geol. Surv., Canada; 1/2 natural size.
Figure 1. *Gymnochelys pascasioi*; type, Cat. No. 8553, Geol. Surv., Canada; ¼ natural size.

Figure 2. Cast of *Anchisaurus poikilon*; type, Cat. No. 8555, Geol. Surv., Canada; ¼ natural size.
Figure 1. Trackways of *Teiropoda rexensis* brevis, Peace River canyon, about 1/2 mile above Gething's mine. The trackway on the left is the type; that on the right is another trackway of the same species. The tracks marked with x are those from which the cast was made.

Figure 2. Cast of *Telopoda rexensis* brevis; part of trackway of type showing detail of left manus and pes; 1/4 natural size.