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Re-discovery of the Euparkeria bonebed locality (Mid-Triassic) in Aliwal North, South Africa, with an update of the taphonomy and depositional environment

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S1 — Historical note on Alfred 'Gogga' Brown based on the biography by Drennen (1944)

Alfred Brown was born in Cirencester England on 26 April 1834. Not much is known about his early years apart from the fact that a Quaker Gentlemen found him working as a tool cleaner in Cirencester College. Impressed by his abilities in Greek and Latin, he arranged a tutorship for Brown in Cape Town. He lived a frugal life and somehow made his way to Aliwal North. In February 1859 he opened a school in Aliwal North which he ran until 1864. In 1860 he started the library in the town that today is still being used as a museum (housing many of the historical records about Brown himself). Facing many financial hardships, he was appointed as postmaster (and postman) in 1862, a post that he held until 1882. Whilst he was postmaster he wrote a love letter to a local town lady, but never received a response. This disappointment seemingly cemented his life as a hermit naturalist and he focused all his spare time collecting fossils and other natural objects, both living and dead, in and around Aliwal North, on the banks of the Orange River and into the Stormberg Mountains.

When he could afford it, he sent boxes of fossils to Sir Roderick Murchison in England who in turn wrote encouraging letters to Brown full of promises of books and financial assistance. However, none of these promises materialized, resulting in Brown's increasing bitterness toward academics. In 1886 Murchison presented the first of these boxes of fossils to Professor Thomas Henry Huxley. Huxley was particularly interested in the dinosaur bones from the Stormberg, and he wrote to Murchison encouraging Brown to search for more specimens. Brown sent a second box, the contents of which became lost for many years. Although Brown packed a third and fourth box, these were never sent, probably because Brown could not afford it. He did write to Murchison about them and for the first time mentioned that the third box contains the skeleton of an animal that has both mammalian and saurian characteristics.

In 1889 Professor H.G. Seeley visited Brown and took a large collection of fossils with him 'on loan'. As what had become a predictable pattern, no feedback about his findings was ever given to Brown. It took another 15 years before the Keeper of Geology at the British Museum, Sir Arthur Smith Woodward, offered Brown enrollment as a benefactor of the museum.

Locally, Brown had strong backing from friends or wealthy individuals such as Mr A.W. Higgins (horticulturalist) and Mr A. Alcock (stonemason) and he continued his fossil hunting with their support in the form of companionship and field assistance.

Through local French missionaries, Brown was put in contact with Professor A. de Quatrefages at the Museum of Natural History in Paris. By 1870 Brown had sent a significant collection of fossils on the promise that he would be compensated for his costs. He was to receive books on geology and palaeontology and the results of the research on his fossils would be shared with him. After a disappointing series of mishaps and delays in Paris, Brown eventually (8 months after the specimens were finally studied) received some books and feedback on his fossils. In the meantime, the Austrian Consul in Port Elizabeth took an interest in Brown's work and offered him a Diploma and election to the Imperial and Royal Society of Vienna, if he would send his collection to the Imperial Mineral and Geological Museum in Vienna. After receiving the paperwork confirming him as a corresponding member of the Imperial and Royal Geographical Society of Vienna (allowing him to use the title, F. G. S. V. – we interpret this to represent Fellow of the Geographical Society of Vienna), he sent a box of fossils to Vienna. However, the receipt of this collection in Vienna was never recognized. So, Brown tried for 25 years to get recognition for his work in London, Paris and Vienna but all his efforts failed.

After these experiences, Brown became very protective and secretive about his collection and turned away many approaches from local scientists, until the medically trained Dr Robert Broom and his friend Dr Kannemeyer paid him a visit in 1903. Dr Kannemeyer was the local physician in the neighbouring town of Burgersdorp and, like Brown, he was an avid amateur fossil collector. Impressed by Broom's knowledge of fossils (particularly mammal-like reptiles), sedimentary geology and his ability to find and prepare fossils, Brown took a liking to Broom. Brown came to trust Broom and subsequently allowed him access to his now extensive collection. Broom and Brown exchanged more than 20 letters and packages containing fossils in the year following his first visit. Broom visited Brown again in 1905 and in 1913 and realized that it would take at least 10 years to describe the specimens in the collection. He then carefully and cautiously persuaded Brown to lend him specimens for that purpose. Broom did not disappoint Brown and they developed a symbiosis that allowed Broom to publish dozens of papers describing Brown's finds and naming at least 14 new species after him. So, it was thanks to Dr Robert Broom that Brown eventually received the long-awaited honour that he deserved for his years of passionate hard work.

Brown died on the 29th of June 1920 at the age of 86 years in the home of his friend A.W. Higgins. He died intestate and his collections went to the highest bidder, the South African Museum.

S2 — Comparison of fossil bone found at the re-discovered *Euparkeria* type locality with the type specimen in the Iziko South African Museum.

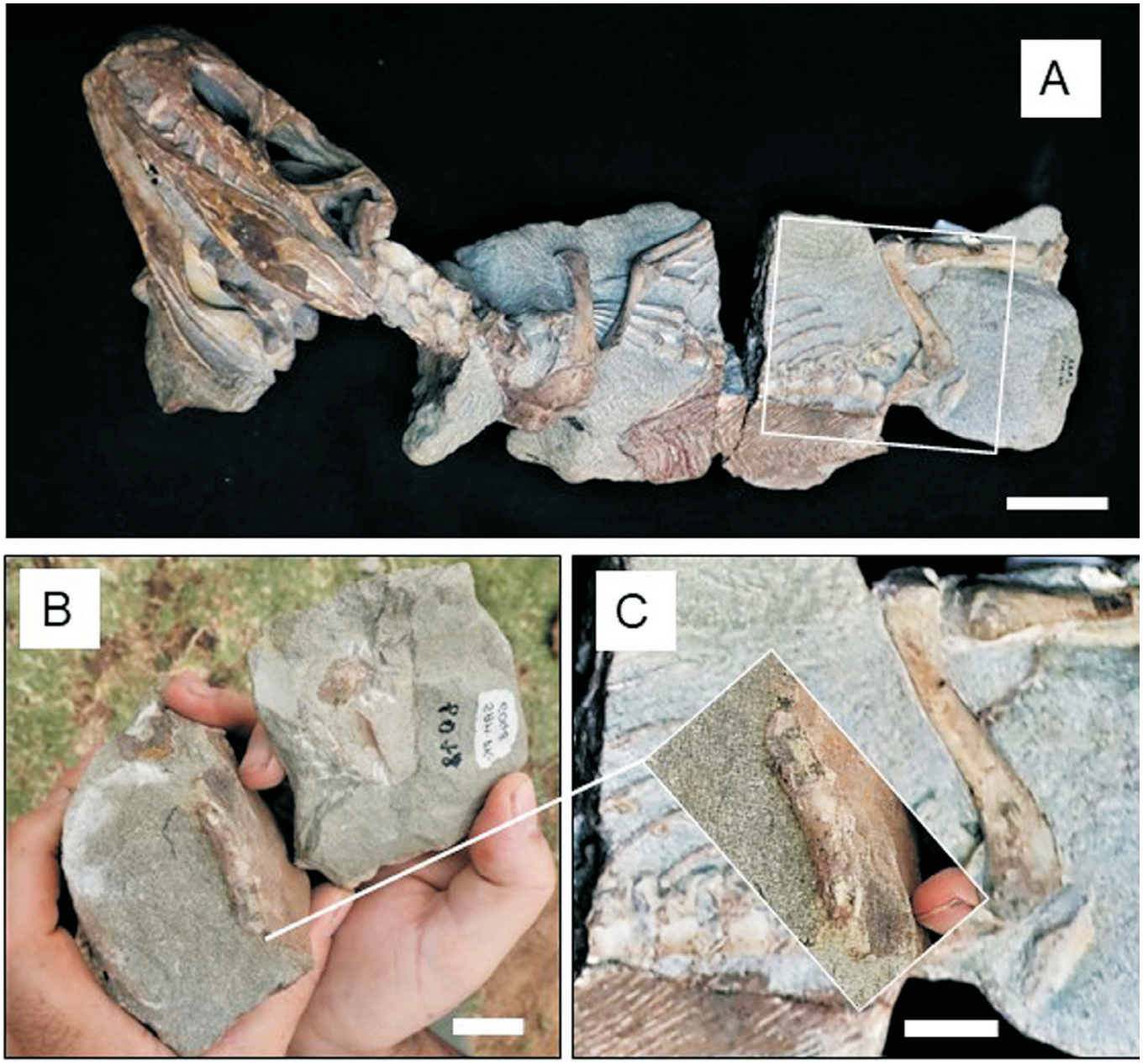


Figure S1. Comparison of the fossil bone found at the re-discovered *Euparkeria* type locality with the type specimen in Iziko South African Museum. (**A**) Dorsolateral view of type specimen of *Euparkeria capensis* (SAM-PK-5867) with right hind limb outlined, (**B**) field image of new bone specimen from the re-discovered type locality and (**C**), side-by-side comparison with *Euparkeria* right femur showing similarity in length, width and curvature. A scale bar = 3 cm, B scale bar = 1.6 cm, C scale bar = 2.5 cm.

S3 — Burrow casts *versus* tree trunk casts

On 26 April 1907, Brown recorded the following: 'The remains of the fossil saurian was found in the afternoon, on the surface edge of a stratum of sandstone on the edge of an intermittent flow of water, several yards to the East of the quarry, & at about 18 inches lower level than where the other fossils were found. Brought in all the fossils that P. Fenwick and myself could find. A very large slab with remains of a saurian in two pieces. A raised impression of a small skeleton of a plant.'



Figure S2. Wood impressions in a loose block in the Webster's abandoned quarry, Scale bar = 5 cm.

During our field search of Webster's abandoned quarry, we came across some wood impressions in a loose block (Fig. S2). These impressions are likely what Brown records as tree stumps that were associated with the fossil bones.

In Brown's notes of 22, 23 and 26 July 1907, he makes mention of 'unrecognizable casts, devoid of structure, of tree stems' that originate from *the beds above* the quarry – 'the stump of a tree appears to have perished in the deposit so that some of the bones are in close connection with the subsequent filled up stem cavity'.

With the help of Mr Gibb (26 July) one of these casts was broken open yielding a small bone fragment. Brown included a sketch in his notes showing one of these *in situ* casts at about a 30° angle with the horizontal. It is now known that tetrapod burrow casts do occur in the upper *Langbergia-Garjainia* (*L-G*) and *Trirachodon-Kannemeyeria* (*T-K*) Subzones of the *Cynognathus* AZ (Wolvaardt, 2021) with ramp angles around 30° being well within the range. We suggest that Brown's interpretation of these casts as hollowed out tree stumps could have been incorrect, and that the casts were the infilling of tetrapod burrows – particularly, since he stated that these hollowed out tree stumps are from the beds *above* the quarry (which consists of mudstones, see Fig. 7 of the main paper). At least one specimen in the Iziko collection appears to be embedded in burrow infill (medium-grained sand) (see Fig. S3).

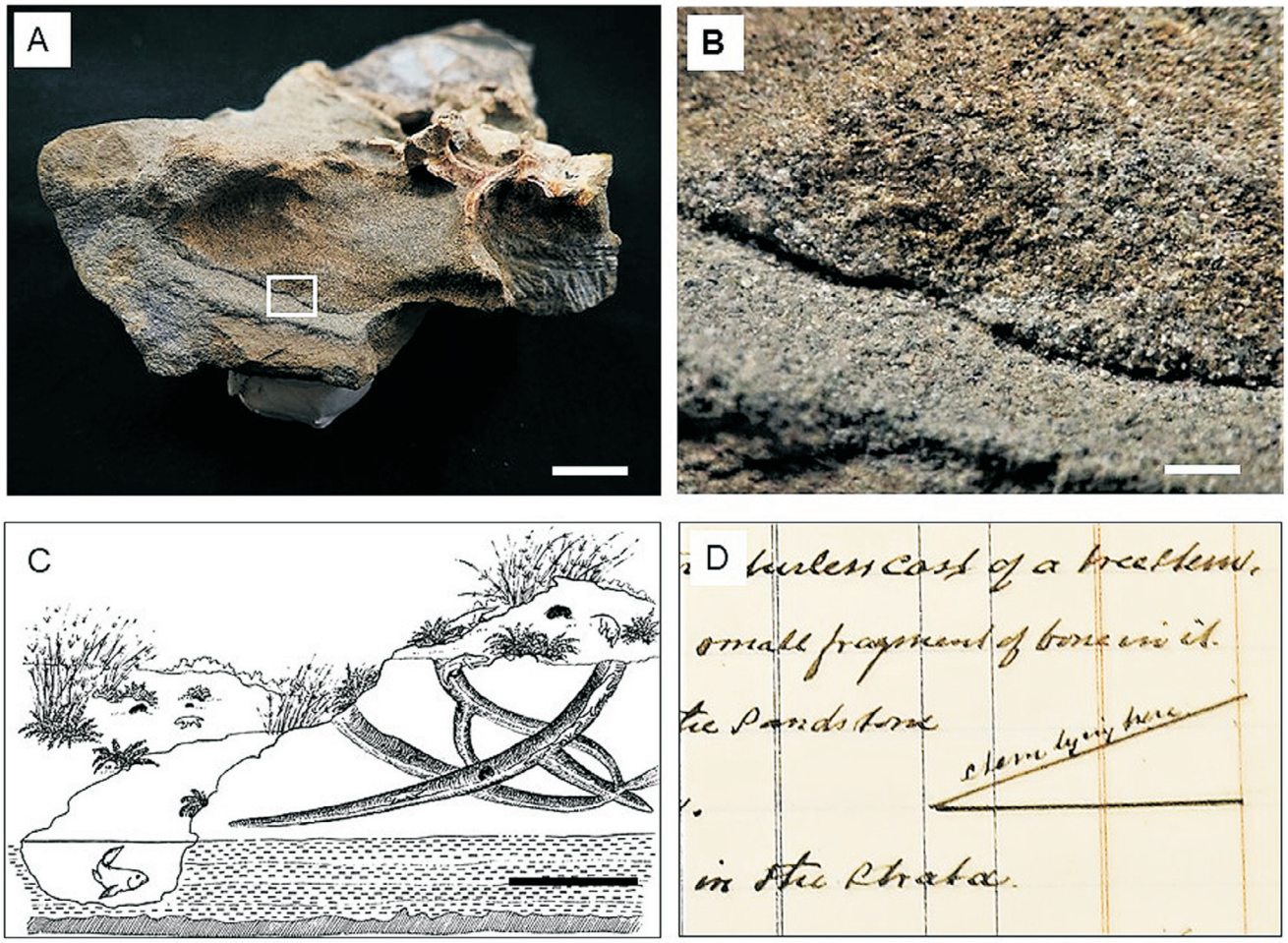
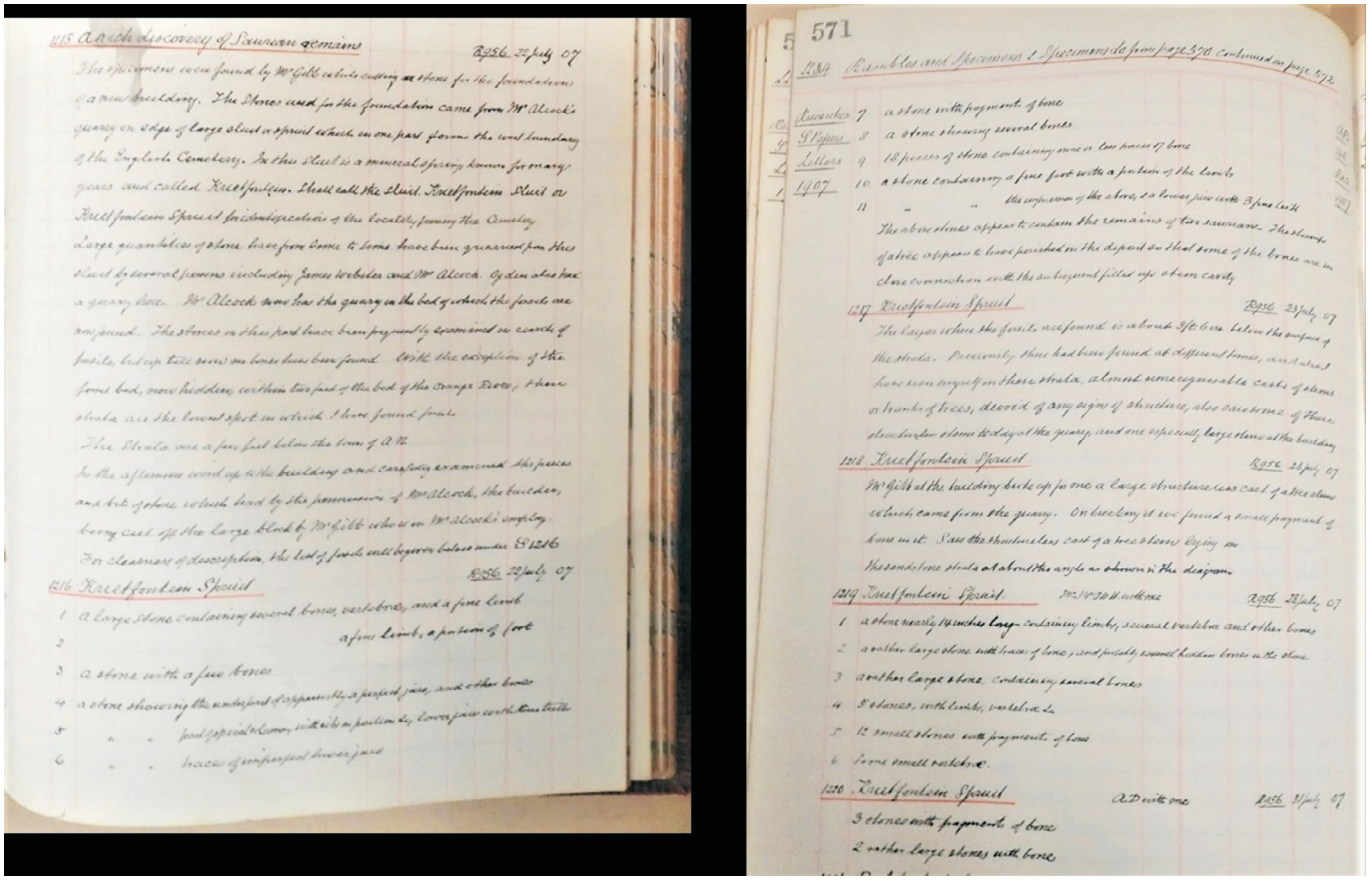


Figure S3. (**A**) *Euparkeria* bone fragment embedded in possible coarse-grained burrow infill. Scale bar = 2 cm. (**B**) Close-up view of white rectangle in A showing the contact of medium-grained ?burrow-fill sandstone above with fine-grained host matrix below. Scale bar ~0.5 cm (**C**) *Langbergia* burrow cast palaeo-environmental reconstruction from Groenewald *et a*l. (2001). Scale bar = 1 m. (**D**) Sketch by Brown indicating the angle of occurrence of an *in situ* 'hollowed out tree stump' that contained a small fragment of fossil bone. The authors now consider it most likely that this was in fact a *Langbergia*-type burrow cast.

S4 — Transcription of Brown's notes on 22 July 1907: Krietfontein Rambles (record on pages 570–571)



1215 A rich discovery of Saurian remains 956 22 July 07

The specimens were found by Mr Gibb while cutting a stone for the foundation of a new building. The stones used for the foundations came from Mr Alcock's quarry on edge of large sluit or spruit which in one part forms the west boundary of the English Cemetery. In this sluit is a mineral spring known for many years and called Krietfontein. Shall call the sluit Krietfontein Sluit or Krietfontein Spruit for identification of the locality passing the Cemetery. Large quantities of stone have from time to time have [*sic*] been quarried from this sluit by several persons including James Webster and Mr Alcock. Ogden also had a quarry here. Mr Alcock now has the quarry in the bed of which the fossils are now found. The stones on this part have been frequently examined in search of fossils, but up till now no bones have been found. With the exception of the fossil bed, now hidden, within two feet of the bed of the Orange River, these strata are the lowest spot in which I have found fossils.

The strata are a few feet below the town of A. N.

In the afternoon went up to the building and carefully examined the pieces and bits of stone which had by the permissions of Mr Alcock, the builder, been cut off the large block by Mr Gibb who is in Mr Alcock's employ.

For clearness of description, the list of fossils will be given below under P1216.

1216 Krietfontein Spruit R956 22 July 07

1 a large stone containing several bones, vertebrae, ribs, & a fine limb
2 a fine limb, portion of a foot
3 a stone with a few bones
4 a stone showing the under part of apparently a perfect jaw and other bones
5 part of a spinal column with ribs in position, etc, lower jaw with three teeth
6 trace of an imperfect lower jaw
7 a stone with fragments of bone
8 a stone showing several bones
9 18 pieces of stone containing more or less traces of bones.
10 a stone containing a fine foot with a portion of the limb.
11 the impression of the above, & a lower jaw with 3 fine teeth.

The above stones contain the remains of two saurian – the stump of a tree appears to have perished in the deposit so that some of the bones are in close connection with the subsequent filled up stem cavity.

1217 Krietfontein Spruit R956 23 July 07

The layer where the fossils are found is about 3 ft 6 in below the Surface of the strata.

Previously those have been found at different times, and also I have myself seen in these strata, almost unrecognizable casts of stems, or trunks of trees, devoid signs of structure, also saw some structureless stems today at the quarry and one especially large stem at the building

1218 Krietfontein Spruit R956 26 July 07

Mr Gibb at the building broke up for me a large structureless cast of a tree stem, which came from above quarry. On breaking it we found a small fragment of bone in it.

Saw the structureless cast of a tree stem lying on the sandstone strata at about the angle as shown in the diagram. (See Fig. S2).

1219 Krietfontein Spruit Mr & Mrs A.W. H. with me R956 28 July 07

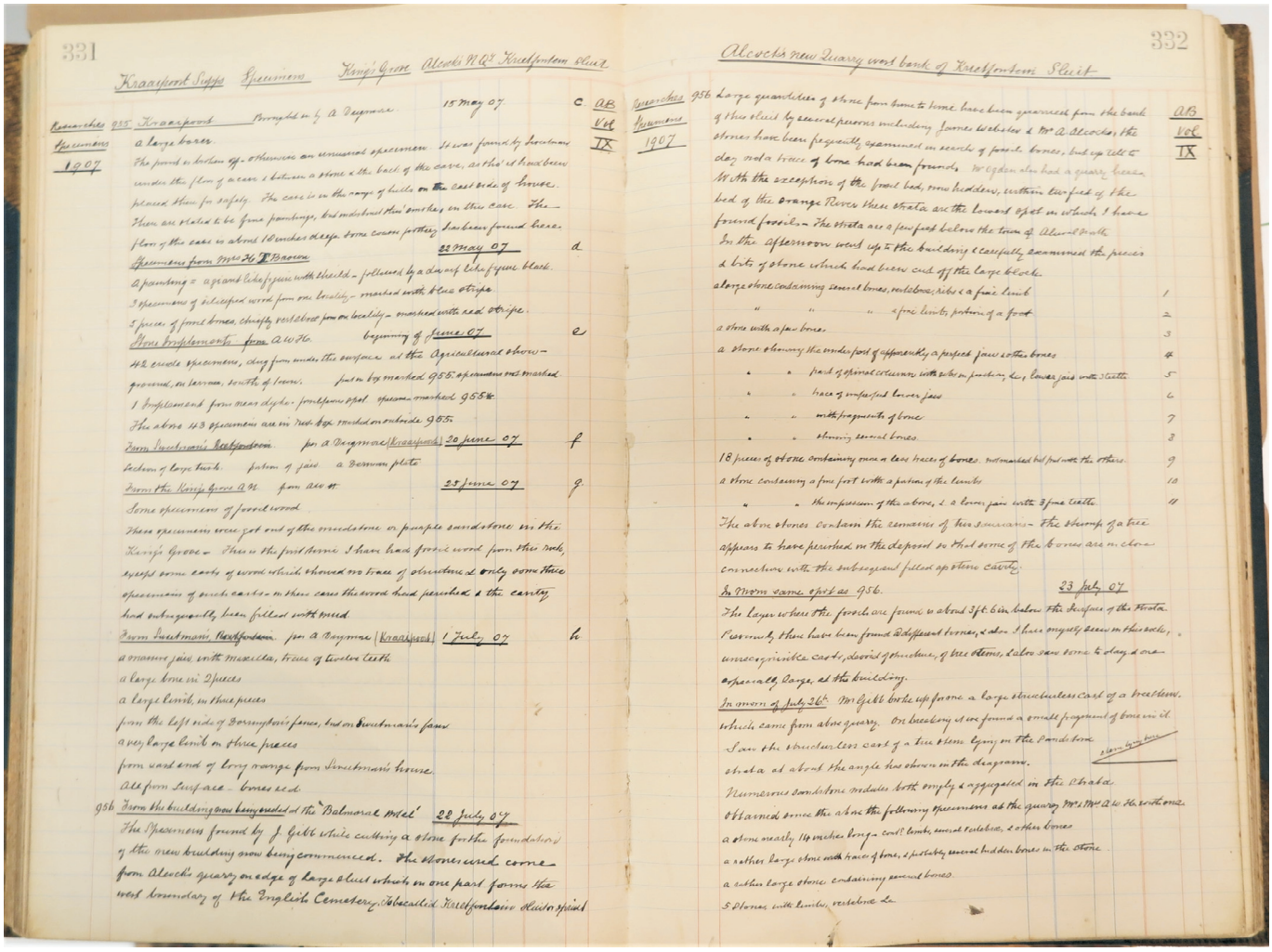
(*Note by authors: the initials A. W. H. are those of Albert William Higgins.*)

1 a stone nearly 14 inches long containing limbs, several vertebrae and other bones.
2 a rather large stone with traces of bone, and probably several hidden bones in the stone
3 a rather large stone containing several bones
4 5 stones, with limbs, vertebrae etc.
5 12 small stones with fragments of bone
6 Some small vertebrae

1220 Krietfontein Spruit A. D. with me R956 31 July 07

3 stones with fragments of bone
2 rather large stones with bone

S5 — Transcription of Brown's notes on 22 July 1907: Krietfontein Rambles (Record on pages 331–332)



956 From the building now being erected at the 'Balmoral Hotel' 22 July 07

The specimens found by J Gibb while cutting a stone for the foundation of a new building now being commenced. The stones come from Mr Alcock's quarry on edge of large sluit which in one part forms the west boundary of the English Cemetery. To be called Krietfontein sluit or spruit.

Alcock's new Quarry west bank of Krietfontein Sluit.

Large quantities of stone from time to time have been quarried from this sluit by several persons including James Webster and Mr Alcock. Ogden also had a quarry here. Mr Alcock now has the quarry in the bed of which the fossils are now found. The stones on this part have been frequently examined in search of fossils, but up till now no bones have been found. With the exception of the fossil bed, now hidden, within two feet of the bed of the Orange River, these strata are the lowest spot in which I have found fossils.

The strata are a few feet below the town of Aliwal North.

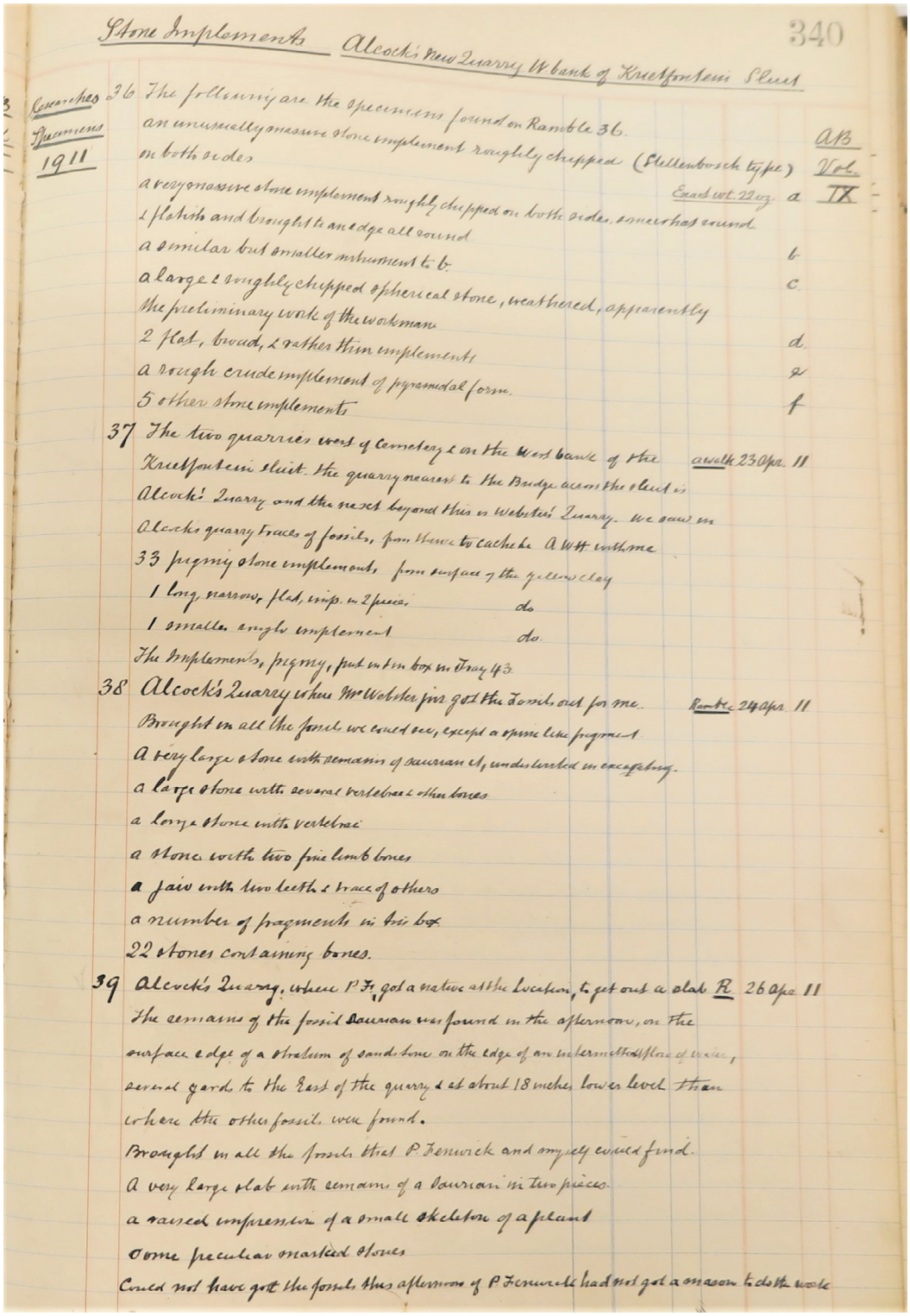
In the afternoon went up to the building and carefully examined the pieces and bits of stone which had been cut off the large block.

a large stone containing several bones, vertebrae, ribs, & a fine limb	1
a fine limb, portion of a foot	2
a stone with a few bones	3
a stone showing the under part of apparently a perfect jaw & other bones	4
part of a spinal column with ribs in position, etc, lower jaw with 3 teeth	5
trace of an imperfect lower jaw	6
with fragments of bone	7
showing several bones	8

18 pieces of stones containing more or less traces ofbones. Not marked not put with the others. 9
A stone containing a fine foot with a portion of the limb. 10
a stone with the impression of the above, & a lower jaw with 3 fine teeth. 11
The above stones contain the remains of two saurian – the stump of a tree appears to have perished in the deposit so that some of the bones are in close connection with the subsequent filled up stem cavity.

In morn same spot as 956 23 July 07
The layer where the fossils are found is about 3 ft 6 in below the Surface of the strata.
Previously those have been found @ different times, & also I have myself seen in this rock, unrecognizable casts, devoid of structure, of tree stems, I also saw some today. & one especially larger at the building.
(*Note by authors: this building was next to the Balmoral Hotel*.)
In morn of July 26th. Mr Gibb broke up for me a large structureless cast of a tree stem,
Which came from above quarry. On breaking it we found a small fragment of bone in it.
Saw the structureless cast of a tree stem lying on the sandstone
(*Note by authors: Mr Brown included a sketch of the angle of the 'stem lying here', approximately 30 degrees*.)
Numerous sandstone nodules both singly & aggregates in the strata.
Obtained since the above the following specimens at the quarry Mr. & Mrs. A. W. H. with me.
a stone nearly 14 inches long cont[aining] limbs, several vertebrae & other bones.
a rather large stone with traces of bone, & probably several hidden bones in the stone
a rather large stone containing several bones
5 stones with limbs, vertebrae etc.

S6 — Transcription of Brown's notes of 23 to 26 April 1911: Krietfontein Rambles (page 340)



Stone Implements Alcock's New Quarry W bank of Krietfontein Sluit 340

Researches Pleasures 1911

36 The following are the specimens found on Ramble 36. AB

an unusually massive stone implement roughly chipped (Stellenbosch type) Vol.

on both sides Exact wt. 22oz. a IX

a very massive stone implement roughly chipped on both sides, corner has round

& flatish and brought to an edge all round

a similar but smaller instrument to b. b

a large & roughly chipped spherical stone, weathered, apparently

the preliminary work of the workman c

2 flat, broad, & rather thin implements d

a rough crude implement of pyramidal form. e

5 other stone implements f

37 The two quarries west of Cemetery & on the West bank of the a walk 23 Apr. 11

Krietfontein sluit. The quarry nearest to the Bridge across the sluit is

Alcock's Quarry and the next beyond this is Webster's Quarry. We saw in

Alcocks quarry traces of fossils, from thence to cache ?d A W H with me.

33 pigmy stone implements, from surface of the yellow clay

1 long, narrow, flat, imp. in 2 pieces. do

1 smaller, rough implement do

The Implements, pigmy, put in box in Tray 43

38 Alcock's Quarry where Mr Webster first got the fossils out for me. Ramble 24 Apr. 11

Brought in all the fossil we could see, except a spine like fragment

A very large stone with remains of saurian etc, undistinct in exception.

a large stone with several vertebrae & other bones

a large stone with vertebrae

a stone with two fine limb bones

a jaw with two teeth & trace of others

a number of fragments in this box

22 stones containing bones.

39 Alcocks Quarry, where P. F. got a native at the location, to get out a slab R 26 Apr. 11

The remains of the fossil saurian was found in the afternoon, on the

surface edge of a stratum of sandstone on the edge of an intermittent flow of water,

several yards to the East of the quarry & at about 18 inches lower level than

where the other fossils were found.

Brought in all the fossils that P. Fenwick and myself could find.

A very large slab with remains of a saurian in two pieces.

a raised impression of a small skeleton of a plant

& some peculiar marked stones

Could not have got the fossils this afternoon if P. Fenwick had not got a mason to do the work

37 a walk 23 Apr. 11

The two quarries west of cemetery & on the west bank of Krietfontein sluit. The quarry nearest to the bridge across the sluit is Alock's quarry and the next beyond this is Webster's quarry. We saw in Alcock's quarry traces of fossils, from thence to cache ?d A W H with me.

33 pigmy stone implements — from surface of the yellow clay

1 long narrow flat implement in two pieces — do

1 smaller rough implement — do

The implements, pigmy, put in box in the tray 43.

38 Alcock's quarry where Mr Webster jnr got the fossil out for me ramble 24 April 11

Brought in all the fossils we could see except a spine like fragment.

A very large stone with remains of a saurian it, undisturbed in excavating.

A large stone with several vertebrae and other bones.

A large stone with vertebrae.

A stone with two fine limb bones.

A jaw with two teeth and traces of others.

A number of fragments in this box.

22 stones containing bones.

39 At Alcock's quarry where P. F. (Fenwick) got a *native from the location* to get out a slab R 26 Apr. 11

The remains of the fossil saurian was found in the afternoon, on the surface edge of a stratum of sandstone on the edge of an intermittent flow of water, several yards to the East of the quarry, & at about 18 inches lower level than where the other fossils were found.

Brought in all the fossils that P. Fenwick and myself could find.

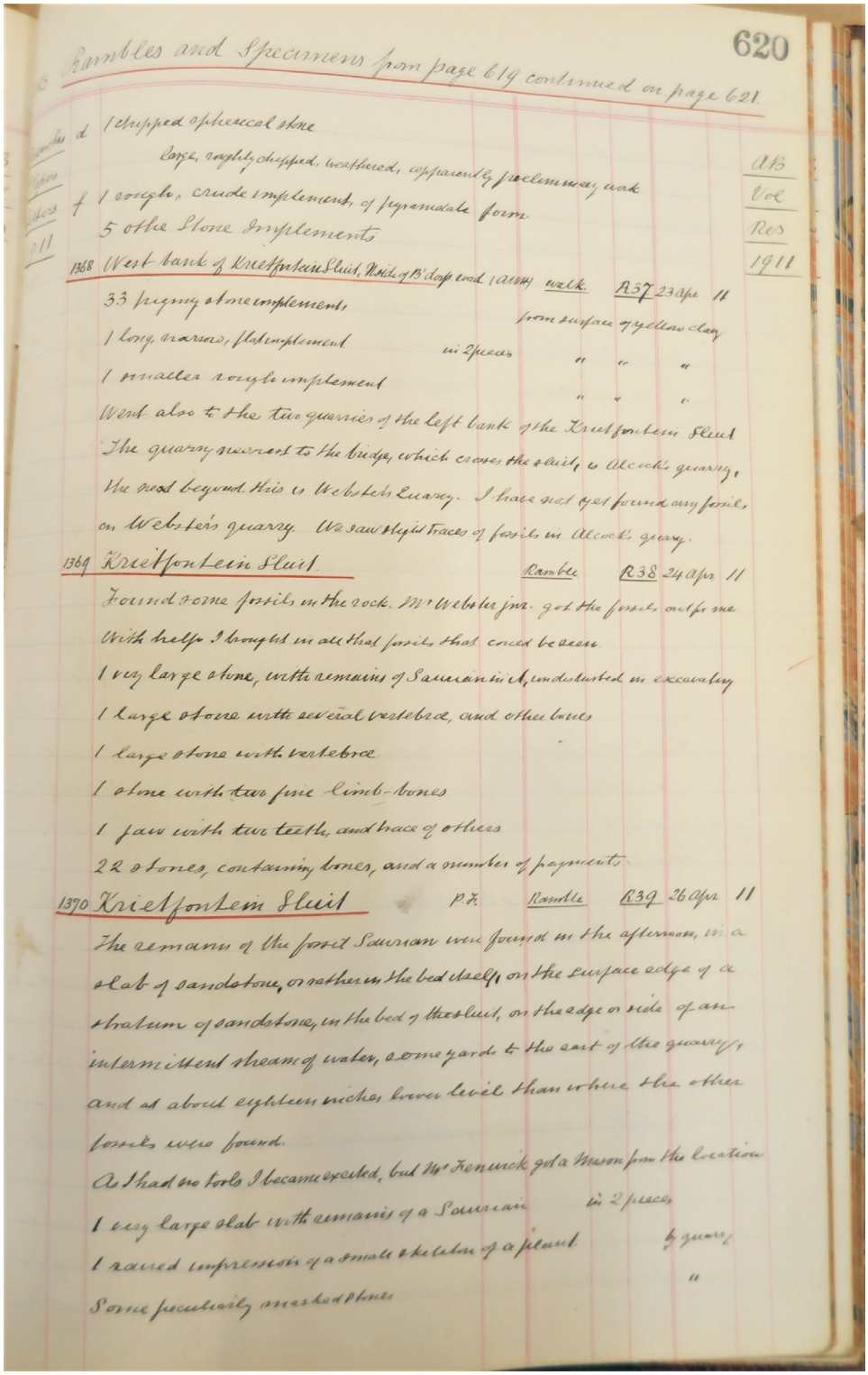
A very large slab with remains of a saurian in two pieces.

A raised impression of a small skeleton of a plant.

Some peculiar marked stones

Could not have got the fossils this afternoon if P. Fenwick had not got a mason to do the work.

S7 — Transcription of Brown's notes of 23 to 26 April 1911: Krietfontein Rambles (Repeated record on page 620)



620

Rambles and Specimens from page 619 continued on page 621

1 chipped spheroical stone
Large, roughly chipped, weathered, apparently preliminary work
1 rough, crude implement, of pyramidale form.
5 other Stone Implements

AB
VdL
Res
1911

1368 West bank of Krietfontein Sluit, N side of B'dorp road (AWH) walk R37 23 Apr 11
33 pigmy stone implements from surface of yellow clay
1 long, narrow, flat implement in 2 pieces " " "
1 smaller rough implement " " "
Went also to the two quarries of the left bank of the Krietfontein Sluit.
The quarry nearest to the bridge, which crosses the sluit, is Alcock's quarry, the next beyond this is Webster's quarry. I have not yet found any fossils on Webster's quarry.
We saw slight traces of fossils in Alcock's quarry.

1369 Krietfontein Sluit. Ramble R38 24 Apr 11
Found some fossils in the rock. Mr Webster jnr. got the fossil, out for me
With help I brought in all that fossils that could be seen.
1 very large stone, with remains of Saurian in it, undisturbed in excavation
1 large stone with several vertebrae, and other bones
1 large stone with vertebrae
1 stone with two fine limb-bones
1 jaw with two teeth, and trace of others
22 stones, containing bones, and a number of fragments

1370 Krietfontein Sluit P.T. Ramble R39 26 Apr 11
The remains of the fossil Saurian were found in the afternoon, in a slab of sandstone, or rather on the bed itself, on the surface edge of a stratum of sandstone, in the bed of the sluit, on the edge or side of an intermittent stream of water, some yards to the east of the quarry, and at about eighteen inches lower level than where the other fossils were found.
As I had no tools I became excited, but Mr Kennick got a Mason from the location
1 very large slab with remains of a Saurian in 2 pieces
1 raised impression of a small skeleton of a lizard by guard
Some peculiarly marked stones "

10

1369 Krietfontein Sluit Ramble R38 24 Apr 11

Found some fossils in the rock. Mr Webster jnr got the fossils out for me.

With help I brought in all the fossils that could be seen

1 very large stone, with remains of a Saurian in it,
undisturbed in excavating

1 large stone with several vertebrae and other bones.

1 large stone with vertebrae.

1 stone with two fine limb-bones.

1 jaw with two teeth, and traces of others.

22 stones, containing bones, and a number of fragments.

1370 Krietfontein Sluit P.F. Ramble R39 26 Apr 11

The remains of the fossil saurian was found in the afternoon, in a slab of sandstone, or rather the bed itself, on the surface edge of a stratum of sandstone, in the bed of the sluit, on the edge or side of an intermittent stream of water, some yards to the east of the quarry, and at about eighteen inches lower level than where the other fossils were found.

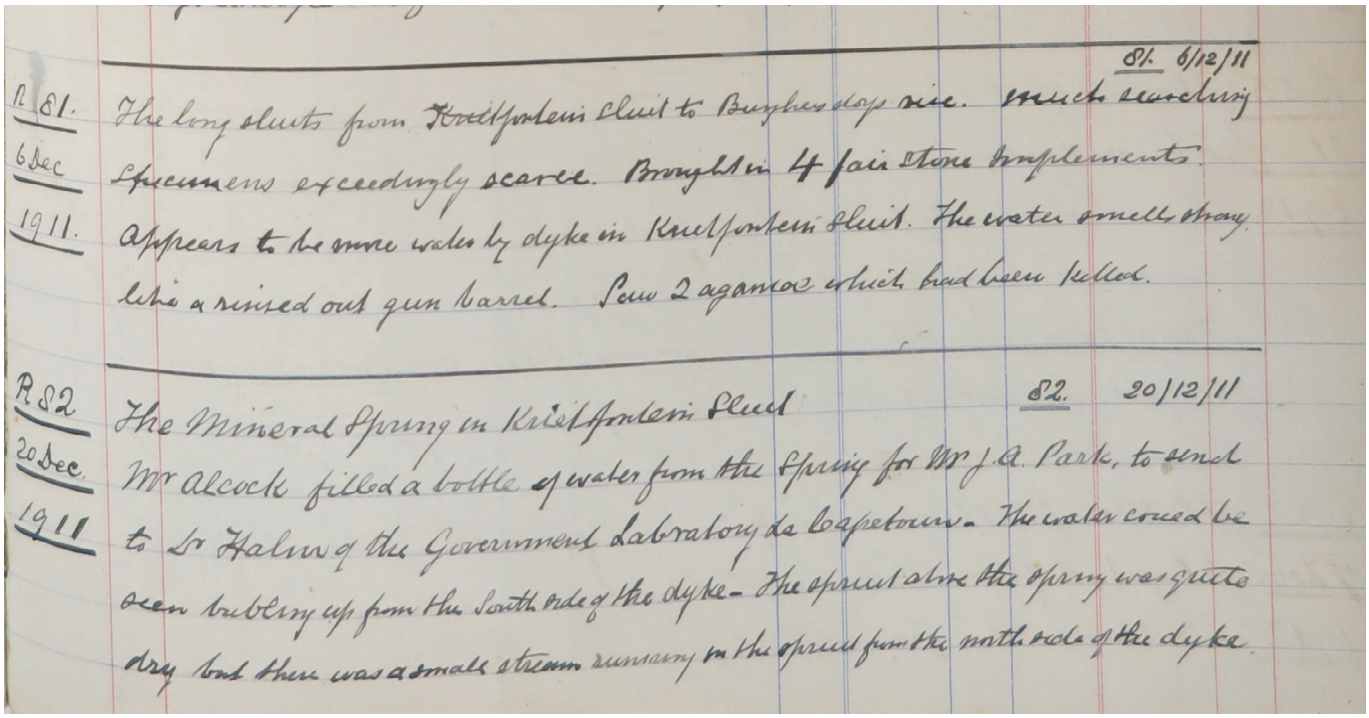
As I had no tools, I became excited, but Mr Fenwick got *a Mason from the location*

A very large slab with remains of a saurian in two pieces.

A raised impression of a small skeleton of a plant by quarry

Some peculiarly marked stones ″

S8 — Transcription of Brown's notes of 6 and 20 December 1911: Krietfontein Rambles (page 340)



R 81. 6 Dec 1911. The long sluits from Krietfontein Sluit to Burgersdorp rise. much searching Specimens exceedingly scarce. Brought in 4 fair stone implements. Appears to be some water by dyke in Krietfontein Sluit. The water smells strong like a rinsed out gun barrel. Saw 2 agamas which had been killed.

81. 6/12/11

R 82. 20 Dec. 1911. The Mineral Spring in Krietfontein Sluit

82. 20/12/11

Mr Alcock filled a bottle of water from the Spring for Mr J. A. Park, to send to Dr Halm of the Government Laboratory in Capetown. The water could be seen bubbling up from the South side of the dyke. The spruit above the spring was quite dry but there was a small stream running in the spruit from the north side of the dyke.

R81 6 Dec1911 — 81 6/12/11

The long sluits from Krietfontein Sluit to Burgersdorp rise. Much searching

Specimens exceedingly scarce. Brought 4 fair stone implements.

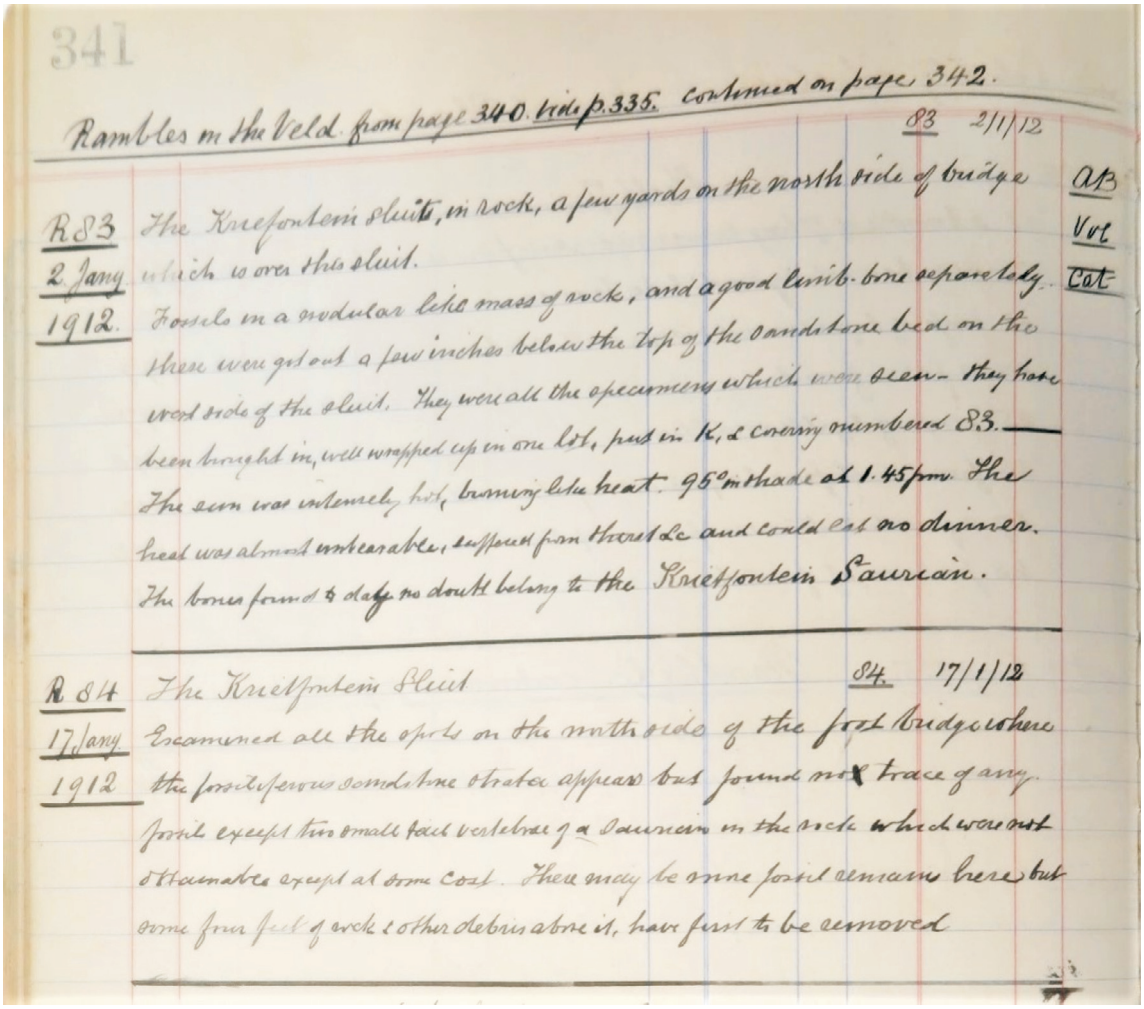
Appears to be some water by dyke in Krietfontein Sluit. The water smells strong like a rinsed out gun barrel. Saw 2 agamas which had been killed.

R 82 20 Dec 1911

The mineral Spring in Krietfontein — 82 20/12/11

Mr Alcock filled a bottle of water from the Spring for Mr J. A. Park, to send to Dr Halm of the Government Laboratory in Capetown. The water could be seen bubbling up from the South side of the dyke. The spruit above the spring was quite dry but there was a small stream running in the spruit from the north side of the dyke.

S9 — Transcription of Brown's notes of 2 and 17 January 1912: Krietfontein Rambles (page 341)



341

Rambles in the Veld. from page 340. vide p.335. continued on page 342.

83 2/1/12

A13
Vol
Cat

R83
2 Jany
1912.

The Krietfontein sluit, in rock, a few yards on the north side of bridge which is over this sluit.

Fossils in a nodular like mass of rock, and a good limb bone separately. These were got out a few inches below the top of the sandstone bed on the west side of the sluit. They were all the specimens which were seen. They have been brought in, well wrapped up in one lot, put in K, & numbered 83.___

The sun was intensely hot, burning like heat. 95° in shade at 1.45 pm. The heat was almost unbearable, suffered from thirst [illegible] and could eat no dinner. The bones found today no doubt belong to the Krietfontein Saurian.

R 84
17 Jany
1912

The Krietfontein Sluit

84 17/1/12

Examined all the spots on the north side of the foot Bridge where the fossiliferous sandstone strata appears but found no trace of any fossil except two small tail vertebrae of a Saurian in the rock which were not obtainable except at some cost. There may be some fossil remains here but some four feet of rock & other debris above it, have first to be removed

R 83 2 Jany 1912 — 83 2/1/12

The Krietfontein sluit, in rock, a few yards on the north side of bridge which is over this sluit.

Fossils in a nodular like mass of rock, and a good limb bone separately. These were got out a few inches below the top of the sandstone bed on the west side of the sluit. They were all the specimens which were seen. They have been brought in, well wrapped up in one lot, put in K, & numbered 83___

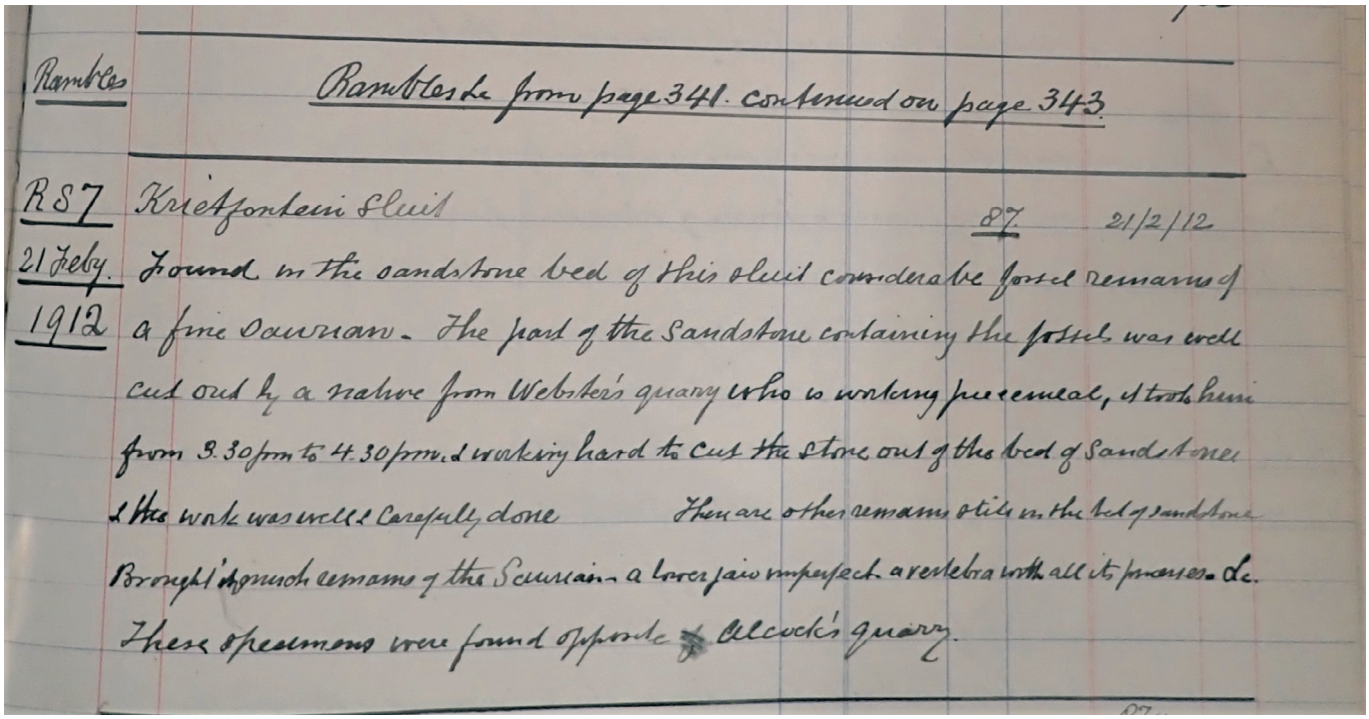
The sun was intensely hot, burning like heat, 95° in shade at 1.45 pm. The heat was almost unbearable, suffered from thirst [?Lc] and could eat no dinner. The bones found today no doubt belong to the Krietfontein Saurian.

R 84 17 Jany 1912 — 84. 17/1/12

The Krietfontein Sluit

Examined all the spots on the north side of the footbridge where the fossiliferous sandstone strata appears but found no trace of any fossils except two small tail vertebrae of a saurian in the rock which were not obtainable except at some cost. There may be some fossil remains here but some four feet of rock and other debris above it, have first to be removed.

S10 — Transcription of Brown's notes of 21 February 1912: Krietfontein Rambles (page 342)

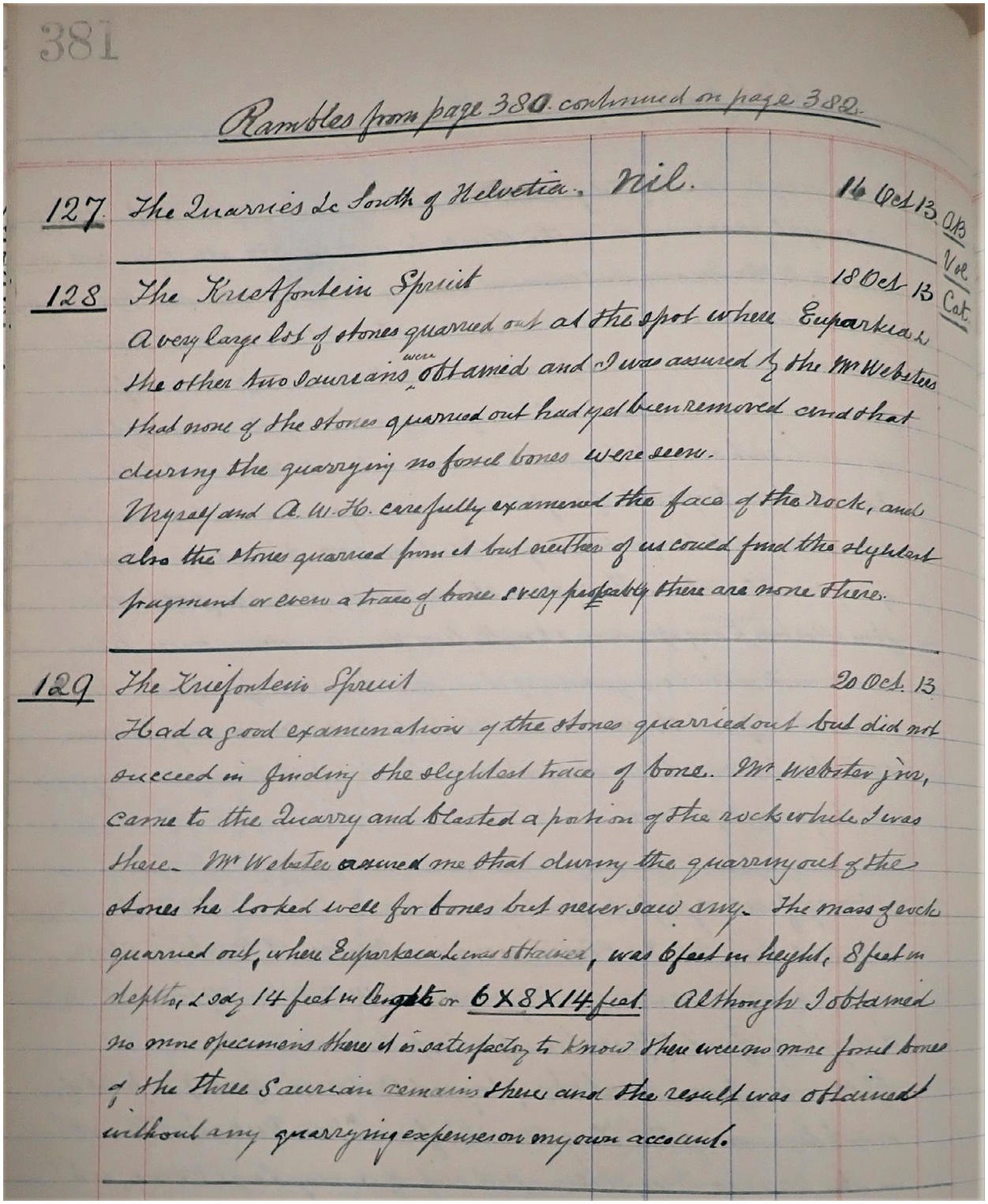


Rambles URambles [Lc] from page 341. continued on page 343

R87, 21 Feby 1912 Krietfontein Sluit 87 21/2/12

Found in the sandstone bed of this sluit considerable fossil remains of a fine saurian. The part of the sandstone containing the fossils was well cut out by a native from Webster's quarry who is working piecemeal, it took him from 3.30 pm to 4.30 pm working hard to cut the stone out of the bed of Sandstone & the work was well & carefully done. There are other remains still in the bed of sandstone. Brought in much remains of the Saurian a lower jaw imperfect a vertebra with all its processes etc. These specimens were found opposite Alcock's quarry.

S11 — Transcription of Brown's notes of 18 to 20 October 1913: Krietfontein Rambles (page 381)



381

Rambles from page 380. continued on page 382.

127 The Quarries S.E. South of Helvetia. Nil. 16 Oct 13. OB Vol. Cat.

128 The Krietfontein Spruit 18 Oct 13

A very large lot of stones quarried out at the spot where Euparkeria & the other two Saurians were obtained and I was assured by Mr Webster that none of the stones quarried out had yet been removed and that during the quarrying no fossil bones were seen.

Myself and A. W. H. carefully examined the face of the rock, and also the stones quarried from it but neither of us could find the slightest fragment or even a trace of bone very probably there are none there.

129 The Krietfontein Spruit 20 Oct. 13

Had a good examination of the stones quarried out but did not succeed in finding the slightest trace of bone. Mr Webster jnr, came to the Quarry and blasted a portion of the rock while I was there. Mr Webster assured me that during the quarrying out of the stones he looked well for bones but never saw any. The mass of rock quarried out, when Euparkeria remains obtained, was 6 feet in height, 8 feet in depth, & say 14 feet in length or 6 X 8 X 14 feet. Although I obtained no more specimens there it is satisfactory to know there were no more fossil bones of the three Saurian remains there and the result was obtained without any quarrying expenses on my own account.

128 The Krietfontein Spruit 18 Oct 13

A very large lot of stones quarried out at the spot where Euparkeria & the other two saurian were obtained and I was assured by Mr Webster that none of the stones quarried out had yet been removed and that during the quarrying no fossil bones were seen.

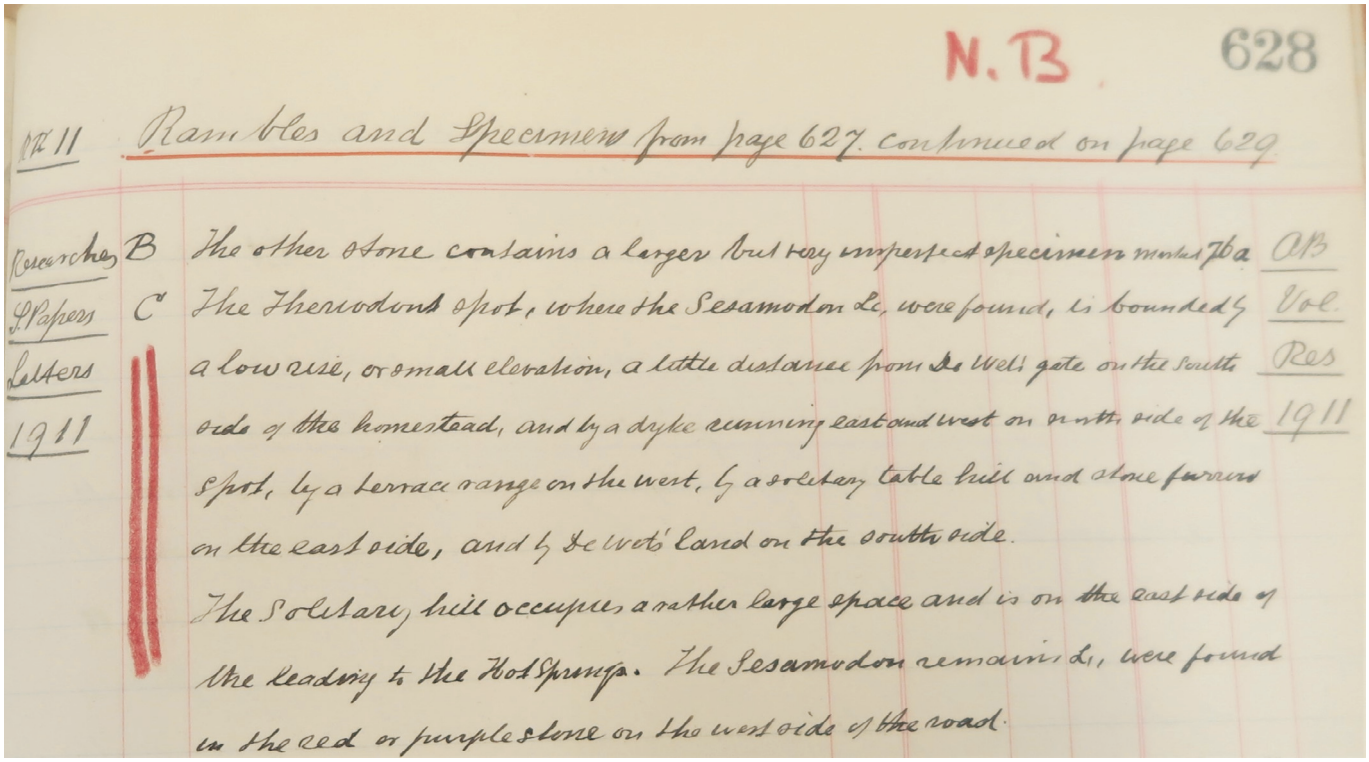
Myself and A. W. H. carefully examined the face of the rock, and also the stones quarried from it but neither of us could find the slightest fragment or even a trace of bone and very probably there are none there.

129 The Krietfontein Spruit 20 Oct 13

Had a good examination of the stones quarried out but did not succeed in finding the slightest trace of bone. Mr Webster

jnr, came to the quarry and blasted a portion of the rock while I was there. Mr Webster assured me that during the quarrying out of the stones he looked well for bones but never saw any. The mass of rock quarried out, where Euparkeria [Lc] was obtained, was 6 feet in height, 8 feet in depth , [Lc] say 14 feet in length or 6x8x14 feet. Although I obtained no more specimens there it is satisfactory to know there were no more fossil bones of these saurian remains there and the result was obtained without any quarrying expenses on my own account.

S12 — Transcription of Brown's notes on the Theriodont Spot (page 628) and Kings Grove (page 624), 1911.



N.B 628

Vol II Rambles and Specimens from page 627. continued on page 629

Researches Papers Letters 1911

B The other stone contains a larger but very imperfect specimen marked [illegible]a AB

C The Theriodont spot, where the Sesamodon [illegible]c were found, is bounded by Vol.

a low rise, or small elevation, a little distance from De Wet's gate on the South Res

side of the homestead, and by a dyke running east and west on north side of the 1911

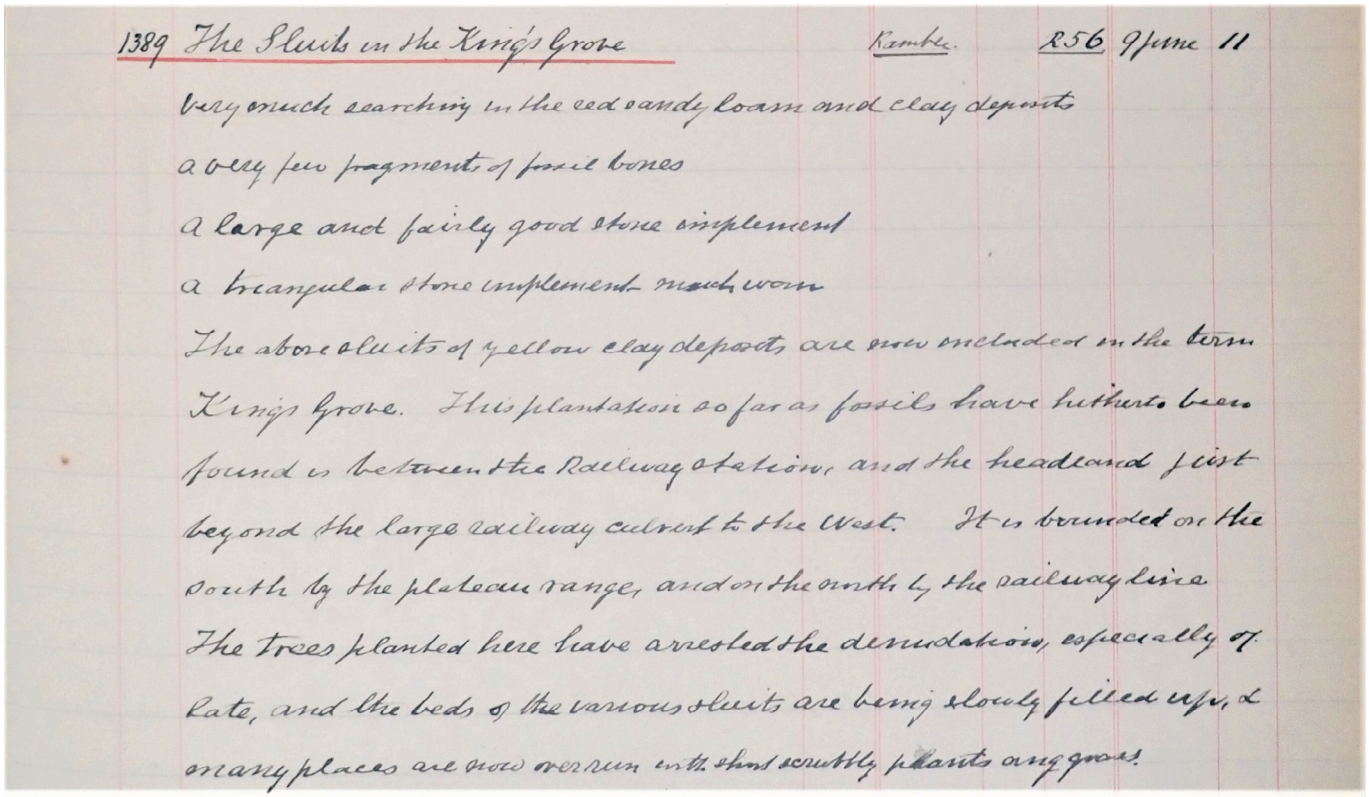
spot, by a terrace range on the west, by a solitary table hill and stone furrow on the east side, and by De Wet's land on the south side.

The Solitary hill occupies a rather large space and is on the east side of the leading to the Hot Springs. The Sesamodon remains [illegible]c, were found in the red or purple stone on the west side of the road.

C The Theriodont spot, where Sesamodon [Lc], were found, is bounded by a low rise, or small elevation, a little distance from De Wet's gate on the South side of the homestead, and by a dyke running east and west on the north side of the spot, by a terrace range on the west, by a solitary table hill and stone furrow on the east side, and by De Wet's land on the south side.

The solitary hill occupies a rather large space and is on the east side of the (*missing word*) leading to the Hot Springs. The Sesamodon remains [Lc], were found in the red or purple stone on the west side of the road.

(*Note by authors: GPS coordinates of red or purple stone, S 30°42.759′, E 26 42.779′.*)



1389 The Sluits in the King's Grove Rambles. R56 9 June 11

very much searching in the red sandy loam and clay deposits

a very few fragments of fossil bones

a large and fairly good stone implement

a triangular stone implement much worn

The above sluits of yellow clay deposits are now included in the term Kings Grove. This plantation so far as fossils have hitherto been found is between the Railway station, and the headland just beyond the large railway culvert to the West. It is bounded on the south by the plateau range, and on the north by the railway line. The trees planted here have arrested the denudation, especially of late, and the beds of the various sluits are being slowly filled up, & many places are now overrun with stunted scrubby plants and grass.

very much searching in the sandy loam and clay deposits

a very few fragments of fossil bones

a large and fairly good stone implement

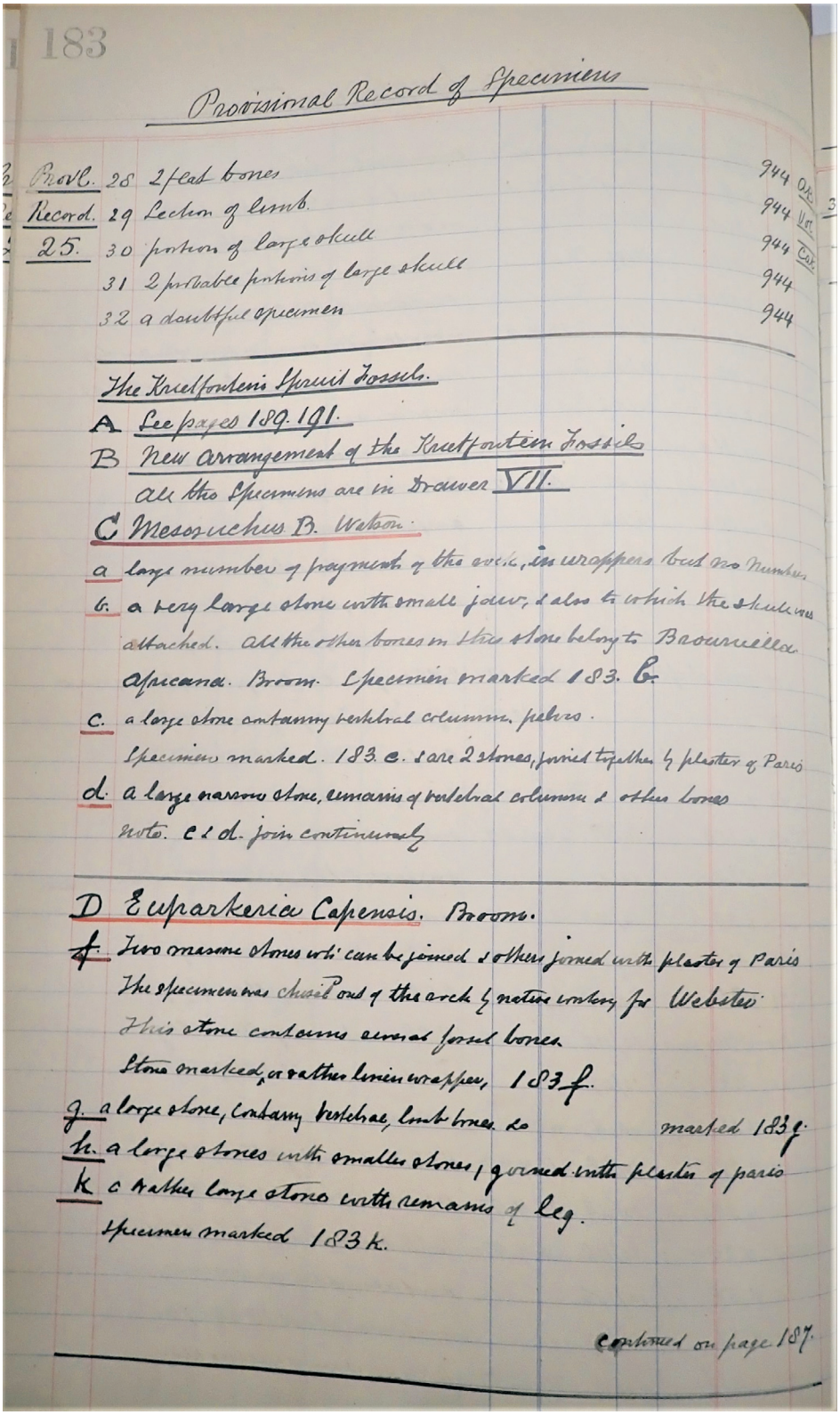
a triangular stone implement much worn

The above sluits of yellow clay deposits are now included in the term Kings Grove. This plantation so far as fossils have hitherto been found is between the Railway station, and the headland just beyond the large railway culvert to the West. It is bounded on the south by the plateau range, and on the north by the railway line

The trees planted here have arrested the denudations, especially of late, and the beds of the various sluits are being slowly filled up, & many places are now overrun with short scrubbly [*sic*] plants ang [*sic*] grass.

(*Note by authors: GPS coordinates of the railway culvert, S 30°42.047', E 26 42.045'.*)

S13 — Provisional Record of Specimens (page 183)



183

Provisional Record of Specimens

Provl. Record. 25.

28 2 head bones — 944 Ox.
29 Section of limb — 944 Ver.
30 portion of large skull — 944 Cat.
31 2 probable portions of large skull — 944
32 a doubtful specimen — 944

The Kriefontein Spruit Fossils.

A See pages 189. 191.

B New arrangement of the Kriefontein Fossils
all the Specimens are in Drawer VII.

C Mesosuchus B. Watson.

a large number of fragments of the rock, in wrappers but no Numbers

b. a very large stone with small jaws, & also to which the skull was attached. All the other bones in this stone belong to Basutosaurus Broom. Specimen marked 183. b.

c. a large stone containg vertebral columns, pelves.
Specimen marked. 183. c. & are 2 stones, joined together by plaster of Paris

d. a large narrow stone, remains of vertebral columns & other bones
Note. c & d. join continuously

D Euparkeria Capensis. Broom.

f. Two massive stones wh: can be joined & others joined with plaster of Paris
The specimen was found on the crest of the rock by natives working for Webster.
This stone contains several fossil bones.
Stone marked, on rather linen wrapper, 183 f.

g. a large stone, containg vertebrae, limb bones &c — marked 183 g.

h. a large stones with smaller stones, joined with plaster of paris

k. a rather large stone with remains of leg.
Specimen marked 183 k.

Continued on page 187.

The Krietfontein Spruit Fossils

A See pages 189.191.

B New Assignment of the Krietfontein Fossils

All the specimens are in drawer VII

C Mesosuchus B. Watson

a. a large number of fragments of the rock, in wrappers, but no numbers.

b. a very large stone with small jaw, & also to which the skull was attached. All the other bones in this stone belong to Browniella Africana. Broom. Specimen marked 183. B.

c. a large stone containing vertebral column, pelvis.

Specimens marked. 183 c. & are 2 stones, joined together by plaster of Paris.

d. a large narrow stone, remains of vertebral column & other bones note. C&d join continuously

(*Note by the authors: From this we surmise that the block containing* Euparkeria *SAM-PK-K8050 and* Mesosuchus *specimen SAM-PK-K8051 must have been part of the 1911 discovery. Also see Transcripts: S4 entry 39 dated 26 April 1911, S5 entry 1370 dated 26 April 1911 and S12 entry E.*)

D Euparkeria Capensis. Broom

f. Two massive (masons) stones wh' can be joined & others joined by plaster of Paris

The specimen was chiselled out of the rock by nativeworking for Webster
This stone contains several fossil bones.

Stones masked, or rather linen wrapper, 183 f.

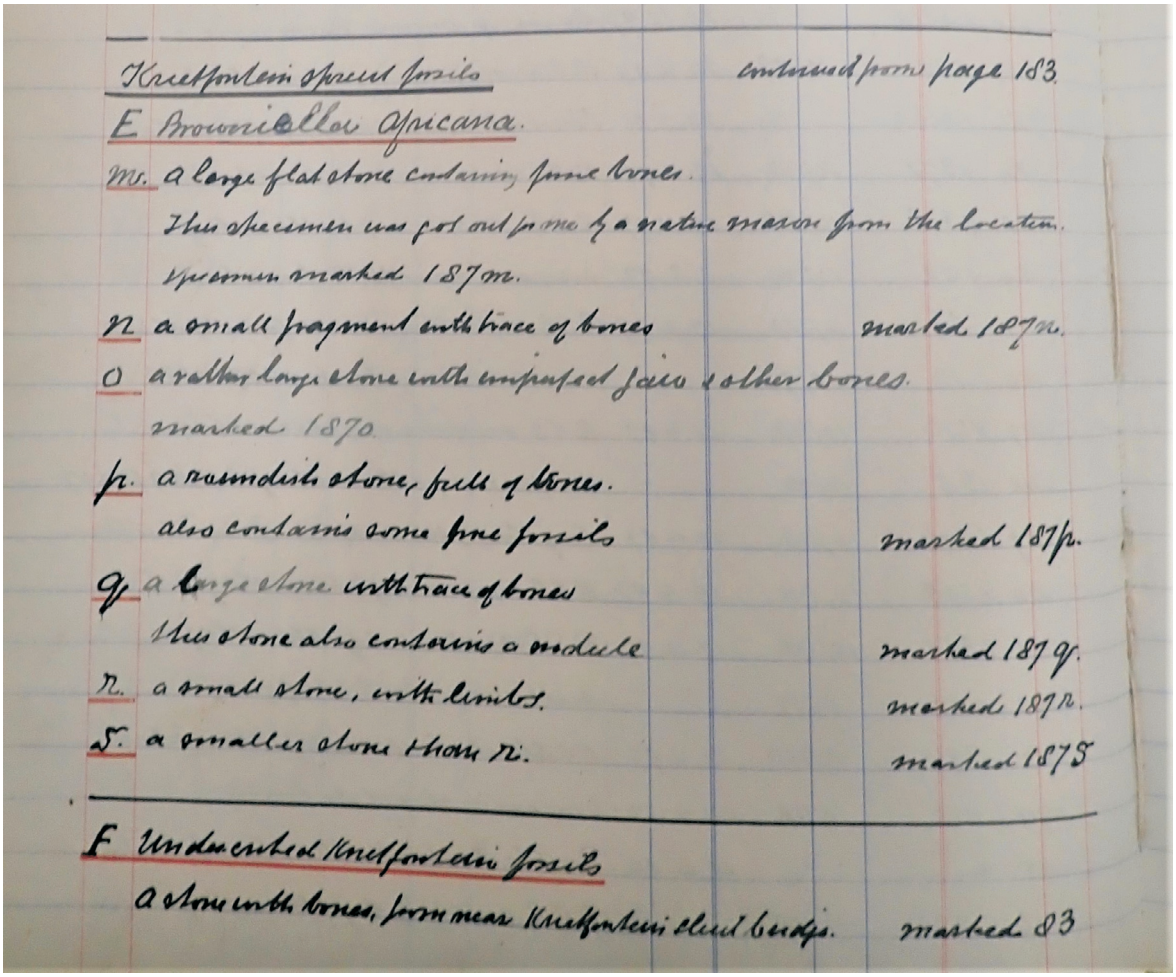
g. a large stone, containing vertebrae, limb bones etc marked 183 g.

h. a large stones with smaller stones, joined with plaster of paris

k. a rather large stone with remains of leg specimen marked 183 k.

continued on page 187.

S14 — Provisional Record of Specimens (page 187)



Krietfontein spruit fossils — continued from page 183

E Browniella Africana

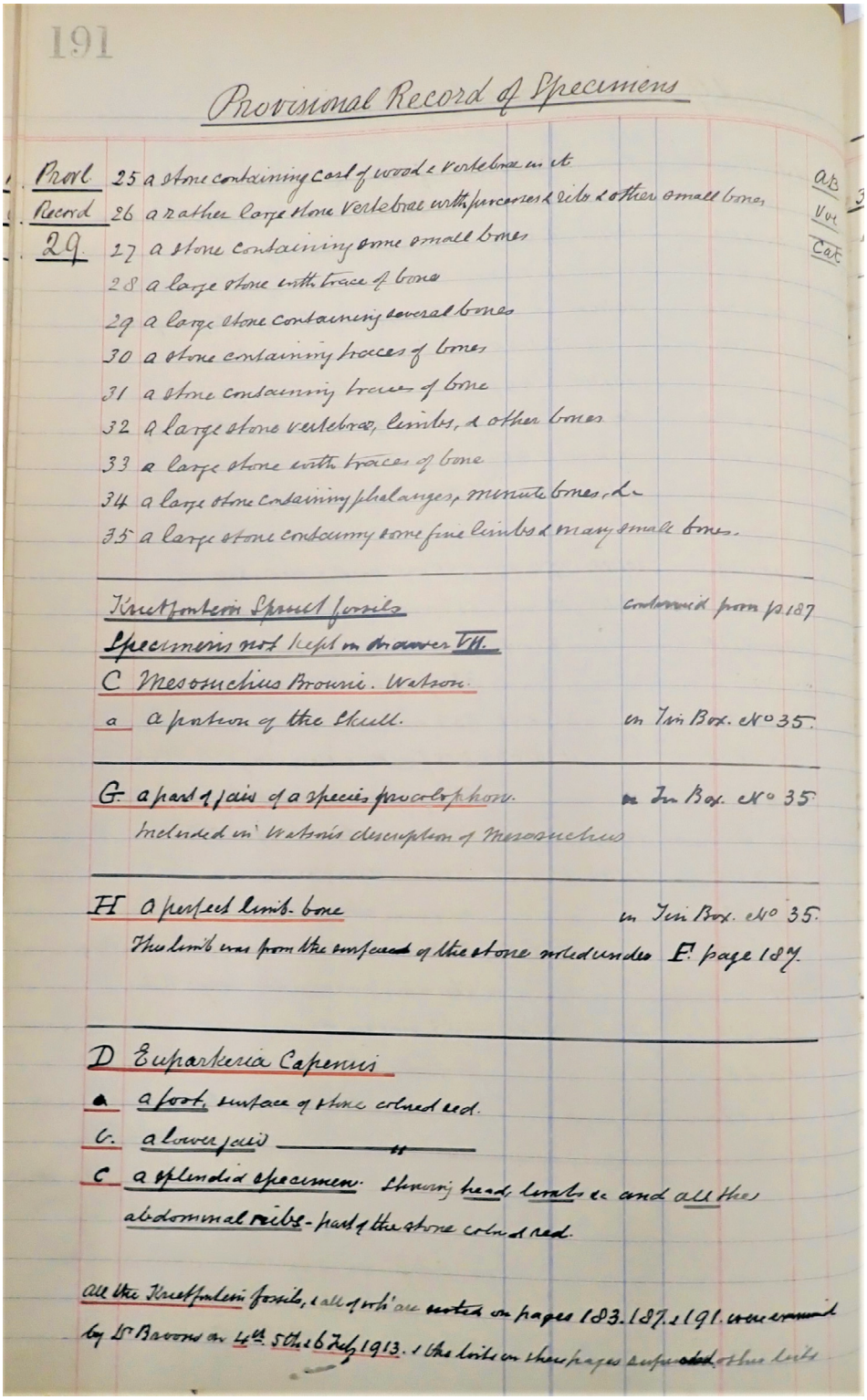
m. a large flat stone containing bones
This specimen was got out for me by a *native mason from the location*.
Specimen marked 187m.

n. a small fragment with trace of bone — marked 187n
o. a rather large stone with imperfect jaw& other bones — marked 187o
p. a roundish stone, full of bones also contains some fine fossils — marked 187p
q. a large stone with trace of bones also contains a nodule — marked 187q
r. a small stone with limbs — marked 187r
s. a smaller stone than r — marked 187s

F Undescribed Krietfontein fossils

A stone with bones, from near Krietfontein sluit bridge — marked 83

S15 — Provisional Record of Specimens (page 191, list on page 189 not transcribed)



191

Provisional Record of Specimens

Provl Record 29.

25 a stone containing coal of wood & vertebrae in it.
26 a rather large stone vertebrae with processes & ribs & other small bones.
27 a stone containing some small bones
28 a large stone with trace of bone
29 a large stone containing several bones
30 a stone containing traces of bones
31 a stone containing traces of bone
32 a large stone vertebrae, limbs, & other bones
33 a large stone with traces of bone
34 a large stone containing phalanges, minute bones, &c
35 a large stone containing some fine limbs & many small bones.

Krietfontein Spruit fossils — continued from p. 187

Specimens not kept in drawers VII.

C Mesosuchus Browni. Watson.

a a portion of the skull. — in Tin Box. N° 35.

G a part of jaw of a species procolophon. — in Tin Box. N° 35.
Included in Watson's description of Mesosuchus

H a perfect limb bone — in Tin Box. N° 35.
The limb was from the surfaces of the stone marked under E. page 187.

D Euparkeria Capensis

a a foot, surface of stone coloured red.

b. a lower jaw ——— "

c a splendid specimen. Showing head, limbs &c and all the abdominal ribs - part of the stone coloured red.

All the Krietfontein fossils, & all of which are noted on pages 183. 187. & 191. were examined by Dr Broom on 4th 5th & 6th July 1913. & the dates on these pages superseded other dates

Krietfontein Spruit fossils — continued from p. 187

Specimens not kept in drawers VII

C Mesosuchus Browni. Watson

a A portion of the skull — in Tin Box. N^{O} 35

G a part of jaw of a species procolophon — in Tin Box. N^{O} 35

Included in Webster's description of Mesosuchus.

H a perfect limb bone — in Tin Box. N^{O} 35

The limb bone was from the surfaces of the stone marked under E. page 187.

D Euparkeria Capensis

a a foot, surface of stone colored red

b. a lower jaw ----------//------

c a splendid specimen. Showing head, limbs & and all the abdominal ribs – part of the stone colored red.

All the Krietfontein fossils, & all of [nb'] are noted on pages 183.187.&191. Were examined by Dr Broom on 4th. 5th & 6th July 1913. The lists in these pages superseded other lists.

Supplementary Material References

DRENNEN, M.R. [*Published before 1944, exact date unknown*]. Gogga Brown. *The life-story of Alfred Brown, South Africa's Hermit-Naturalist*. Cape Town, Maskew Miller Limited. (*Note by authors: This biography is largely based on the 15 folio volumes of Brown's journal*.)

GROENEWALD, G. H., WELMAN, J. & MACEACHERN, J. A. 2001. Vertebrate burrow complexes from the Early Triassic *Cynognathus* Zone (Driekoppen Formation, Beaufort Group) of the Karoo Basin, South Africa. *Palaios* **16**(2), 148–160. http://dx.doi.org/10.2307/3515526

WOLVAARDT, F.P. 2021. Sedimentology and taphonomy of a tetrapod fossil accumulation in the Triassic Burgersdorp Formation of the Karoo Basin. M.Sc. thesis, University of the Witwatersrand, Johannesburg, South Africa, 66–107. https://hdl.handle.net/10539/33141