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48TH INTERNATIONAL COMMISSION ON THE HISTORY OF GEOLOGICAL SCIENCES (INHIGEO) SYMPOSIUM

CRACOW POLAND
31 JULY – 4 AUGUST
2023

POLISH GEOLOGICAL INSTITUTE
NATIONAL RESEARCH INSTITUTE
INTERNATIONAL COMMISSION
ON THE HISTORY OF GEOLOGICAL SCIENCES
POLISH GEOLOGICAL SOCIETY
POLISH ACADEMY OF ARTS AND SCIENCE

Historical accounts of the Maitland argentiferous galena deposit, Eastern Cape - the first lead discovery in South Africa (1792)

Sharad Master

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48th INHIGEO Symposium, Krakow, Poland, 31 July - 4 August 2023

Zulu
Tsonga
Basotho
Tswana
Xhosa
Venda
Ntwana

The Kalahari San have not been shown due to their nomadic lifestyle.

ZIMBABWE
Messina
NORTHERN PROVINCE
PIETERSBURG
BOTSWANA
Limpopo
MOZAMBIQUE
Nelspruit
Mmabatho
PRETORIA
MPUMALANGA
JOHANNESBURG
MAPU
Molopo
NORTH-WEST
GAUTENG
SWAZI-LAND
NAMIBIA
Upington
Vaal
FREE STATE
KWAZULU-NATAL
KIMBERLEY
BLOEMFONTEIN
Orange
NORTHERN CAPE
MALUTI
Tugela
PIETERMARITZBURG
DURBAN
LESOTHO
Orange
DRAKENSBERG
Umzimkulu
ATLANTIC OCEAN
SOUTH AFRICA
INDIA
OCEA
Olifants
Umtata
EASTERN CAPE
Beaufort West
Graaff-Reinet
Great Fish
Great Kei
Port St Johns
CEDARBERG
Sundays
Saldanha Bay
WESTERN CAPE
EAST LONDON
Paarl
SWARTBERG
Oudtshoorn
Grahamstown
CAPE TOWN
Stellenbosch
Breede
OUTENIQUA
George
Knysna
PORT ELIZABETH
False Bay
Cape Agulhas
N

Pb mining operations in South Africa (Snodgrass, 1986)

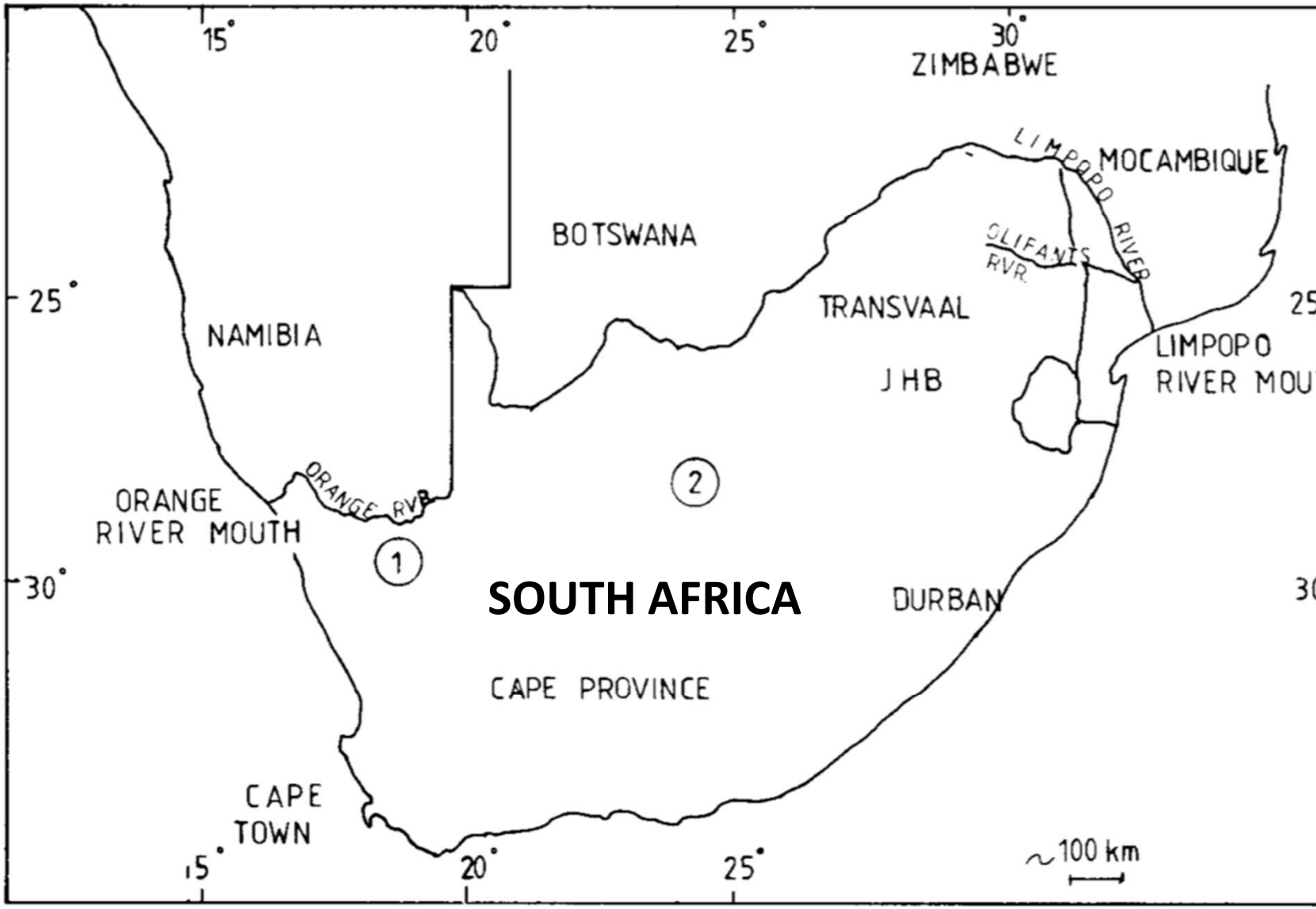


Fig. 1—Lead operations in South Africa
1. Black Mountain Mineral Development
2. Pering (Shell S.A.)

Pb mining operations in South Africa (Snodgrass, 1986)

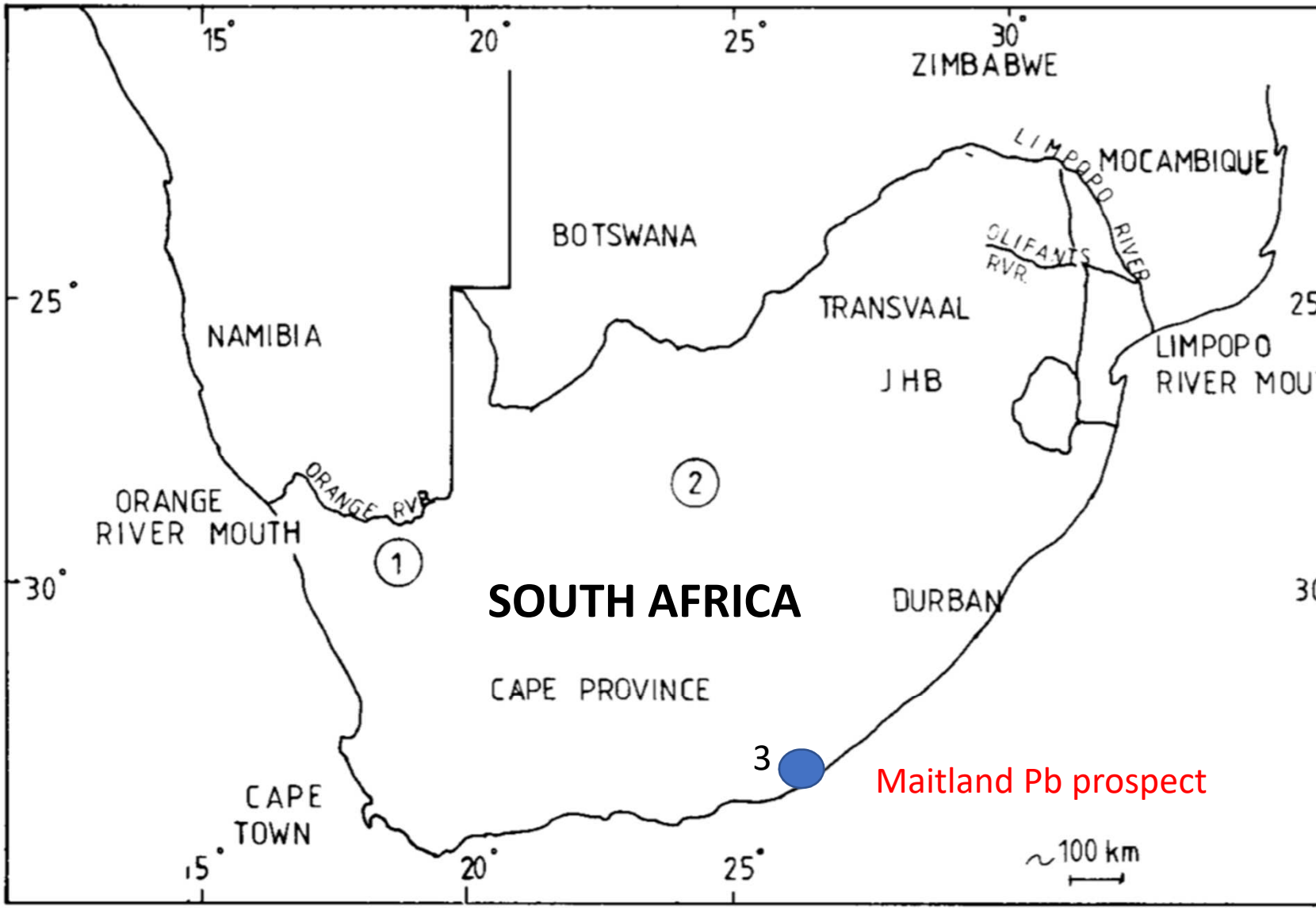
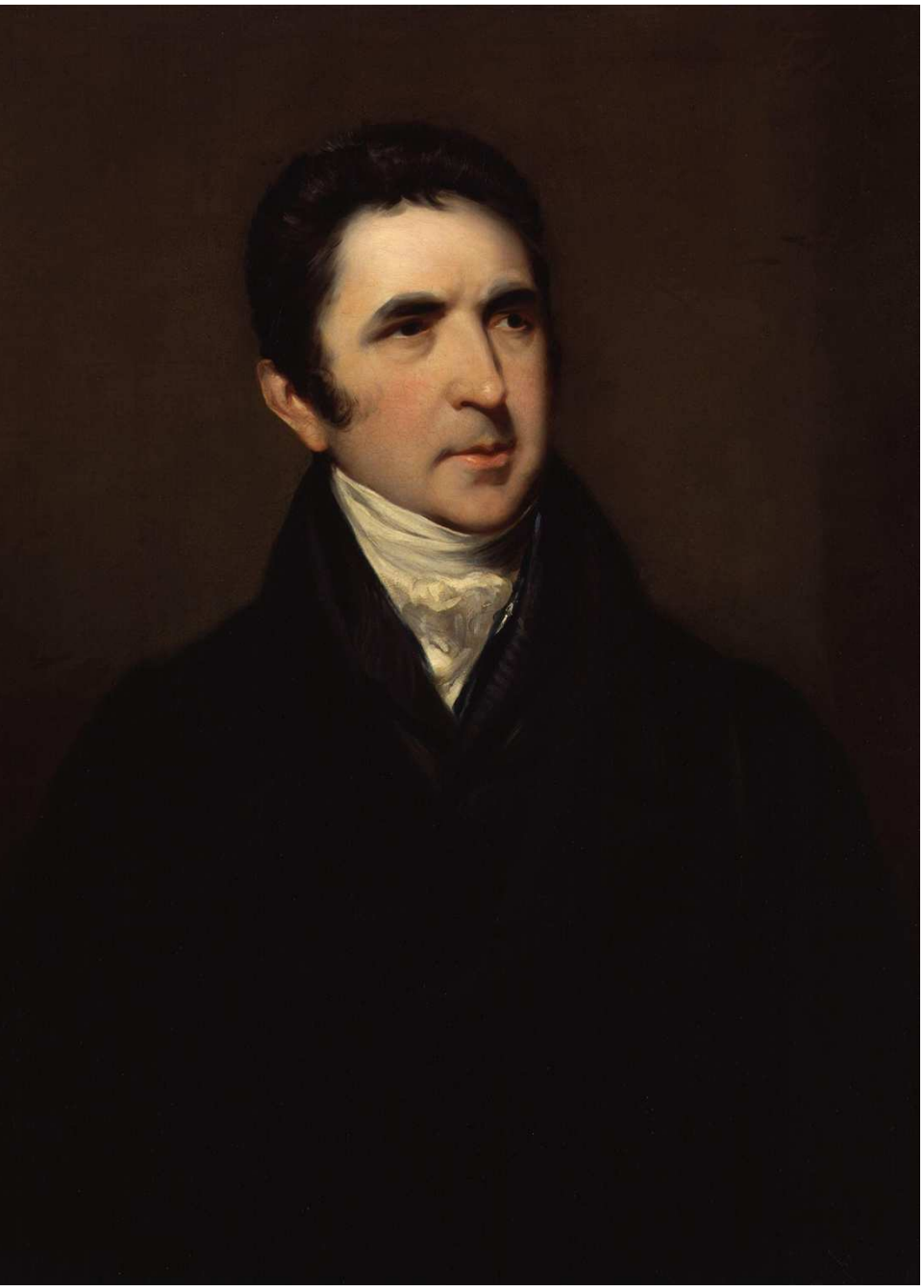


Fig. 1—Lead operations in South Africa
1. Black Mountain Mineral Development
2. Pering (Shell S.A.)

3. Maitland Pb deposit- The first Pb mine in SA



Sir John Barrow (1764-1848)

Secretary to Earl of Macartney, British Governor of the Cape of Good Hope Colony

He visited the Maitland lead prospect in Augus 1797, and described it in his Travels in the Interic of South Africa (1801). He found masses of Ag-ric galena.

He reported on assays done in 1792 by Major Vo Dehn, who reported that "**200 pounds of or yielded 100 pounds of lead, and 8 ounces o silve**r"

rrow (1801)

AN

ACCOUNT

OF

TRAVELS

INTO THE

NTERIOR OF SOUTHERN AFRICA,

IN THE YEARS 1797 AND 1798:

INCLUDING

CURSORY OBSERVATIONS

ON THE

OLOGY AND GEOGRAPHY OF THE SOUTHERN PART OF THAT CONTINENT;
THE NATURAL HISTORY OF SUCH OBJECTS AS OCCURRED IN THE
ANIMAL, VEGETABLE, AND MINERAL KINGDOMS;

AND

ETCHES OF THE PHYSICAL AND MORAL CHARACTERS OF THE VARIOUS
TRIBES OF INHABITANTS SURROUNDING THE SETTLEMENT OF THE

CAPE OF GOOD HOPE.

TO WHICH IS ANNEXED,

DESCRIPTION OF THE PRESENT STATE, POPULATION, AND PRODUCE OF
THAT EXTENSIVE COLONY;

ITH A MAP CONSTRUCTED ENTIRELY FROM ACTUAL OBSERVATIONS
MADE IN THE COURSE OF THE TRAVELS.

By JOHN BARROW,

LATE SECRETARY TO THE EARL OF MACARTNEY, AND AUDITOR-GENERAL OF
PUBLIC ACCOUNTS, AT THE CAPE OF GOOD HOPE.

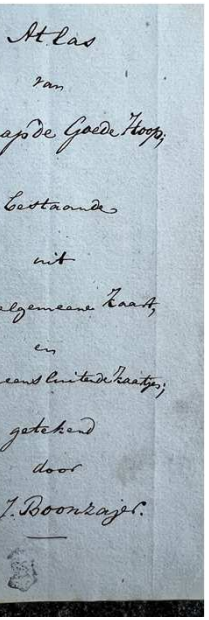
LONDON:

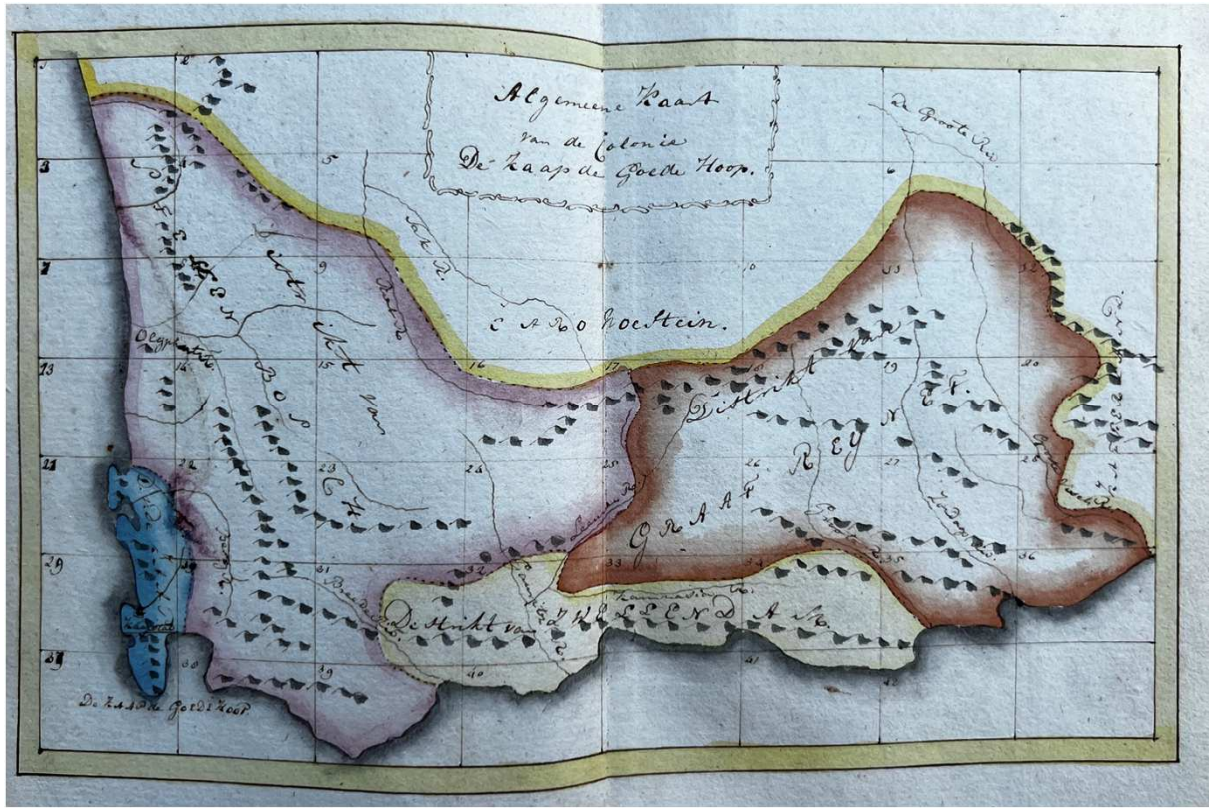
Printed by A. Strahan, Printers-Street,

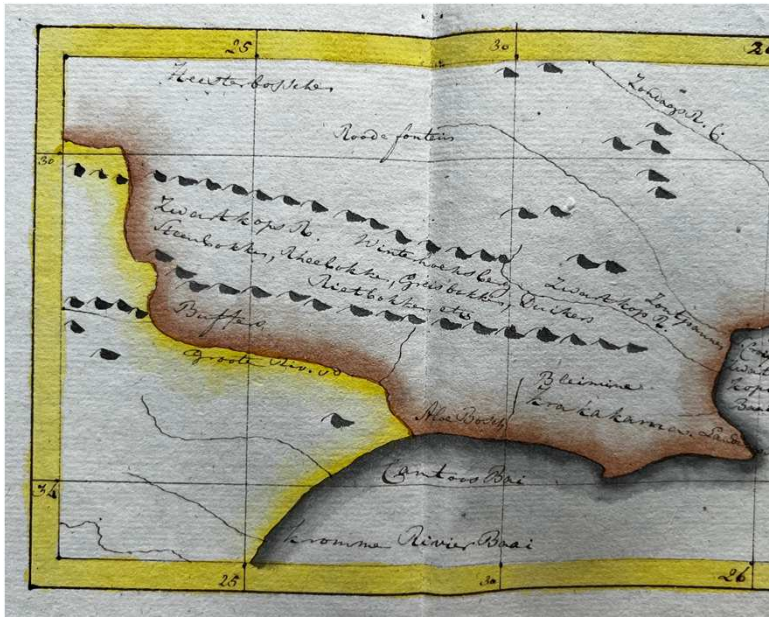
FOR T. CADELL JUN. AND W. DAVIES, IN THE STRAND.

1801.

"Leadmine" shown in detail from Barrow's 180 Map







Boonzajer's Atlas (manuscript copy of Barrow's 1801 Map, in Dutch translation, 1803-1805). Sharad Master Collection.

Barrow, J. (1803-1805). Reizen in de binnelanden van het zuidlijk gedeelte van Afrika. Haarlem

Lead mine shown as "Bleimines"

Barrow (1801) reported that the Lead prospect was discovered in 1792 by a Major Von Dehn, who had samples analysed, and they were found to be rich in lead and silver.

"According to this gentleman's statement of the assay, **two hundred pounds of the ore contained one hundred pounds of pure lead and eight ounces of silver**. Should this on a more accurate trial turn out to be the case, it may hereafter prove a valuable acquisition to the colony. Lead mines, it is true, are generally very deep below the surface of the ground, and the working of them is both troublesome and expensive. But at this place, a vein of rich ore, shewing itself at the surface, gives reasonable grounds for presuming that the large body of this mine is at no great depth, and if so it might be worked with great advantage."

Hinrich Lichtenstein (1780-1857)

Hinrich Lichtenstein (1780-1857)- German doc
naturalist, physician to Dutch Governor Janssens a
tutor to his son; later founder of the Berlin Zoo.
Travelled to Eastern Cape in 1803. Visited the l
prospect at Maitland, and had ore samples analysed
Berlin by mineral chemist Martin Heinrich Klapr
(1743-1817).

enstein, H., 1811-12. *Reisen im Südlichen Afrika in den Jahren 1803, 1804, 1805 und 1806.* 2 vols., C. Salfeld, Berlin.

“Some [ore] which I brought home with me was examined by the chief physician Klaproth, at Berlin, when he found in a ***hundred parts fifty three of lead, thirteen of sulphur, and a small quantity of silver, scarcely worth mentioning****. My friend, Baron Dankelmann, who visited the country a few months after me, by command of General Janssens, and examined the earth very accurately, found nearly the same result as Major Von Dehn.”* - Lichtenstein (1811-12)

Baron von Dankelmann was a skilful pupil at the renowned Bergakadem
(Mining School) in Freiberg, which at that time was under the direction of i
famous founder, Abraham Gottlob Werner (1749-1817). Through his zeal
mineralogy, von Dankelmann entered the service of the Dutch East Ind
Company. After a four-month stay in Batavia, he returned to Europe in 1804 v
the Cape of Good Hope. The main object of his visit was the mineralogic
exploration of the interior of the Dutch colonies, especially the copper ores ther
While he was at the Cape, he was instructed by Governor Janssens to visit th
lead mines near Van Staden’s River.

John Centlivres Chase (1795-1877)

John Centlivres Chase (1795-1877) was born i England and came to South Africa in 1820 as one o the 1820 Settlers, settling in Algoa Bay.

The description of the lead deposits near the mouth Van Staden's River by Chase in his 1843 book *The Ca of Good Hope and the Eastern Province of Algoa B* may have stimulated investors to put money in opening a mine there.

> *"A rich vein being found unusually near the surface, gives reasonable grounds for supposing that a large body of the mine may not lie at any great depth, and if so, would be worked advantageously. "*

Andrew Geddes Bain (1797-1864)

Andrew Geddes Bain (1797-1864) was a road builder and self-taught geologist, who is widely regarded as the “Father of South African geology”.

He made a trip to the Van Staden’s River, and the Maitland Mine, in the company of Dr Guybon Atherstone, most likely in 1845.

He thought (mistakenly) that the (non-fossiliferous) host rocks of the Maitland Mine were Carboniferous in age.

Maitland Mining Company formed in 1846

n Friday 16th January 1846 the *Cape of Good Hope and Port Natal Shipping and Mercanti*
zette carried an announcement in its leader columns for the establishment of the Maitlan
ning Company, for the mining of the Maitland Mines which name was given to the lea
orkings near the Van Staden's River, in honour of Sir Peregrine Maitland (1777-1854), who wa
e Governor of the Cape, 1844-1847.

rospectus of the Maitland Mining Company
Maitland Mining Company:
apital **£10,000** in 200 Shares of £50.0.0 each.
rovisional Committee of Management:
mith Esq. – Chairman
Messrs. Andrews, Bevan, Fleming, Harries, D. Phillips
ndrews, Esq. – Treasurer.
astern Province Bank – Bankers.

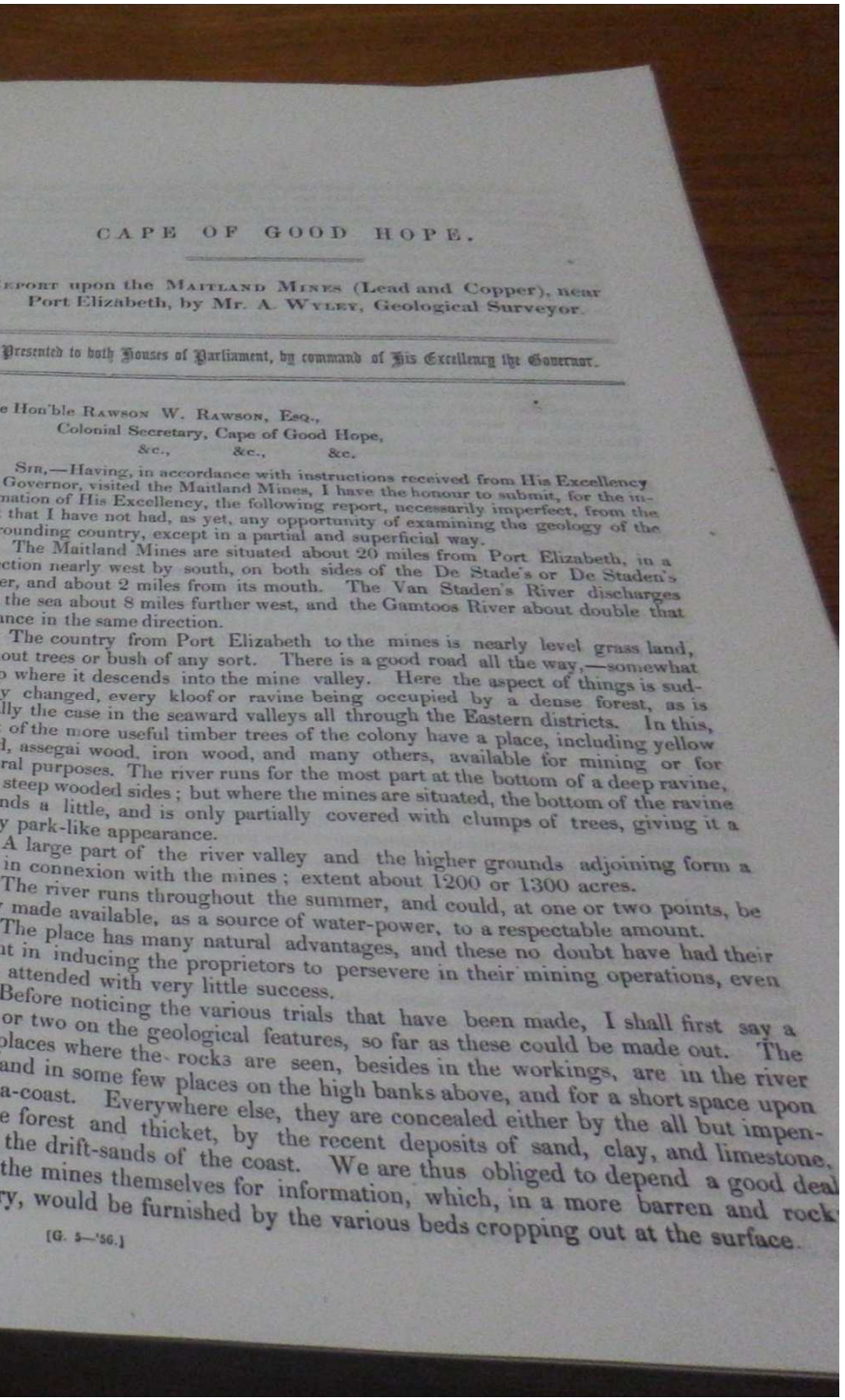
his Company has been formed with a view of working the valuable MAITLAND MINES in a more efficient mann
han could be accomplished by a private individual.

Dr William Guybone Atherstone (1814-1898)

Dr William Guybon Atherstone (1814-1898) was born in England and came to South Africa as an 1820 Settler, residing in Grahamstown since 1828. He was the best known physician in the Eastern Cape, and was also well known for his geological and palaeontological researches.

He revisited the Maitland Mine in April 1849 when it was being developed, and left a detailed account of his visit in his diary (Mathie, 1998)

"Robb Penhay, formerly Director of Dartmoor Mines in Australia, says that the Maitland Mines lie in the New Red and white sandstones. The lode is running in a bituminous marl stone, one of the series of the New Red Sandstone!!! (N.R.S.). Robb Penhay thinks it will become the Cornwall of South Africa! " - Atherstone (1849).



CAPE OF GOOD HOPE.

EPORT upon the MAITLAND MINES (Lead and Copper), near Port Elizabeth, by Mr. A. WYLEY, Geological Surveyor.

Presented to both Houses of Parliament, by command of His Excellency the Governor.

e Hon'ble RAWSON W. RAWSON, ESQ.,
Colonial Secretary, Cape of Good Hope,
&c., &c., &c.

SIR,—Having, in accordance with instructions received from His Excellency Governor, visited the Maitland Mines, I have the honour to submit, for the in- nation of His Excellency, the following report, necessarily imperfect, from the that I have not had, as yet, any opportunity of examining the geology of the ounding country, except in a partial and superficial way.

The Maitland Mines are situated about 20 miles from Port Elizabeth, in a ction nearly west by south, on both sides of the De Stade's or De Staden's er, and about 2 miles from its mouth. The Van Staden's River discharges the sea about 8 miles further west, and the Gamtoos River about double that nce in the same direction.

The country from Port Elizabeth to the mines is nearly level grass land, out trees or bush of any sort. There is a good road all the way,—somewhat o where it descends into the mine valley. Here the aspect of things is sud- y changed, every kloof or ravine being occupied by a dense forest, as is lly the case in the seaward valleys all through the Eastern districts. In this, of the more useful timber trees of the colony have a place, including yellow d, assegai wood, iron wood, and many others, available for mining or for ral purposes. The river runs for the most part at the bottom of a deep ravine, steep wooded sides; but where the mines are situated, the bottom of the ravine nds a little, and is only partially covered with clumps of trees, giving it a y park-like appearance.

A large part of the river valley and the higher grounds adjoining form a in connexion with the mines; extent about 1200 or 1300 acres.

The river runs throughout the summer, and could, at one or two points, be made available, as a source of water-power, to a respectable amount.

The place has many natural advantages, and these no doubt have had their t in inducing the proprietors to persevere in their mining operations, even attended with very little success.

Before noticing the various trials that have been made, I shall first say a or two on the geological features, so far as these could be made out. The olaces where the rocks are seen, besides in the workings, are in the river and in some few places on the high banks above, and for a short space upon a-coast. Everywhere else, they are concealed either by the all but impen- e forest and thicket, by the recent deposits of sand, clay, and limestone, the drift-sands of the coast. We are thus obliged to depend a good deal the mines themselves for information, which, in a more barren and rock ry, would be furnished by the various beds cropping out at the surface.

[G. 5—'56.]

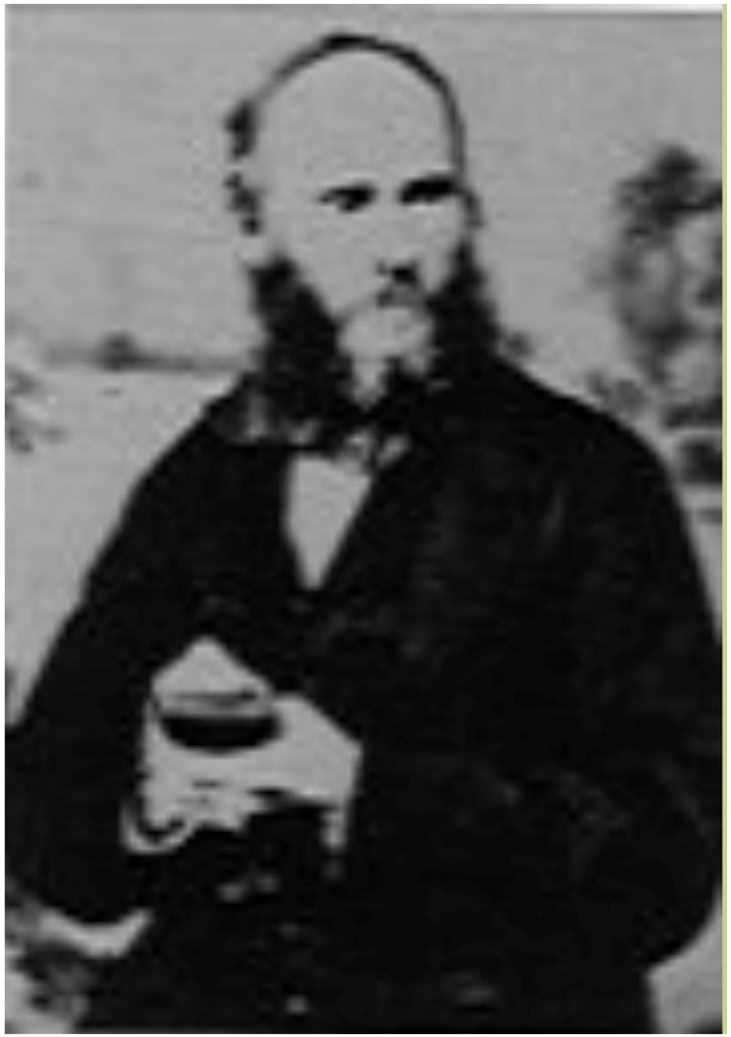
Andrew Wyley (1856)

Wyley, A. (1856). Report upon the Maitland Mines (Lead and Copper), near Port Elizabeth, 21 Dec. 1855. Cape of Good Hope Parliamentary Reports, Cape Town, G5-56, 6 pp.

Andrew Wyley (1820-1885) was an Irish geologist and botanist, working for the Irish Geological Survey, who was brought to the Cape Colony to work as the first government geologist of the colony

The first negative report on the Maitland Mine:

> "The ore here found is argentiferous galena; the **silver** according to analyses by Henry, reaching from **7½ to 12 ounces in the ton**. But, even of this quality, in order to prove remunerative, it should occur in a continuous solid vein of an average thickness of five or six inches- whereas, it is only in small elongated nodules, 4-12 inches square and one or two inches thick, and even those, at distant intervals. Nor does there seem to be any prospect of improvement, more ore being found at the commencement than at any subsequent period.
>
> **With these facts before us, I think the above workings have been very properly abandoned. "** Wyley (1856)

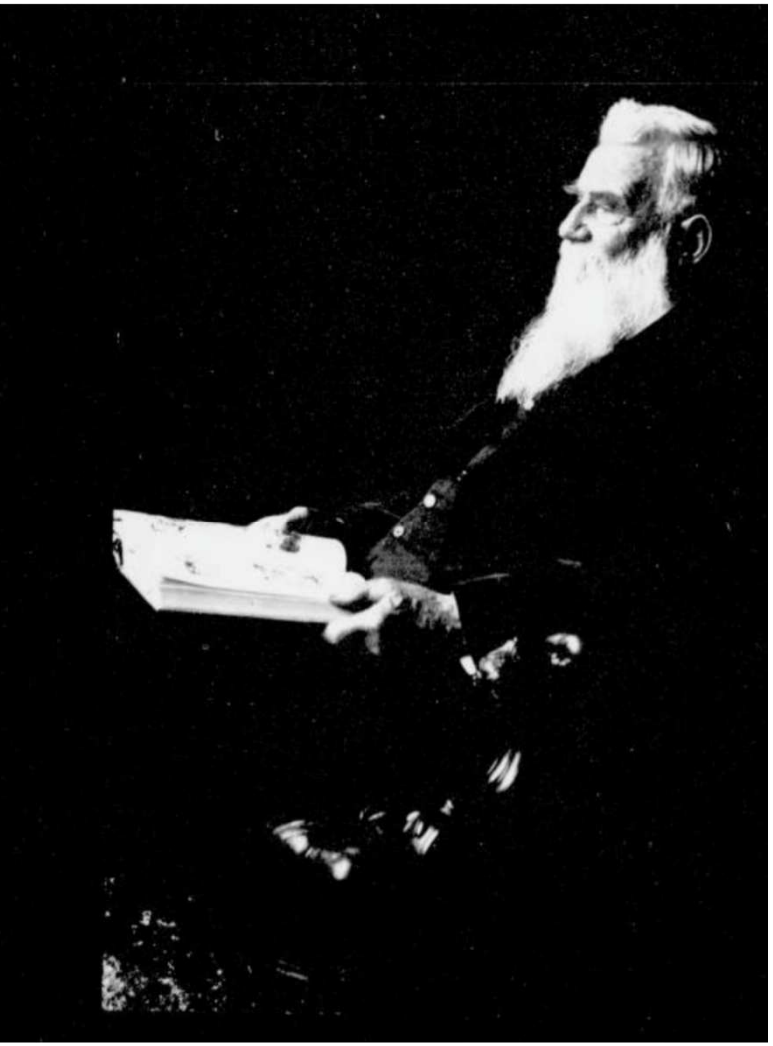


Richard Nathaniel Rubidge (1820-1869)

Dr Richard Nathaniel Rubidge (1820-1869), of Port Elizabeth, was one of the best known medical doctors in the Eastern Cape, together with Dr Atherstone, and like him, also had a great interest in geology and palaeontology, having accompanied Atherstone to the copper mines of Namaqualand.

The lead and copper ores of the Maitland Mines are found in veins of carbonate of lime and quartz, lying parallel with the strata of the chlorite-schist and crystalline limestone. In some spots where the rock had undergone decomposition freely, masses of rich copper and lead ore were found; but on tracing these down into the hard matrix, they were soon lost in threads. **I think that more extended research might be made in this neighbourhood with some prospect of success, provided the true nature of the veins was borne in mind, and the works abandoned when they ceased to be profitable.** -Rubidge (1858)

Edward J. Dunn (1844-1937)



National Library of Australia

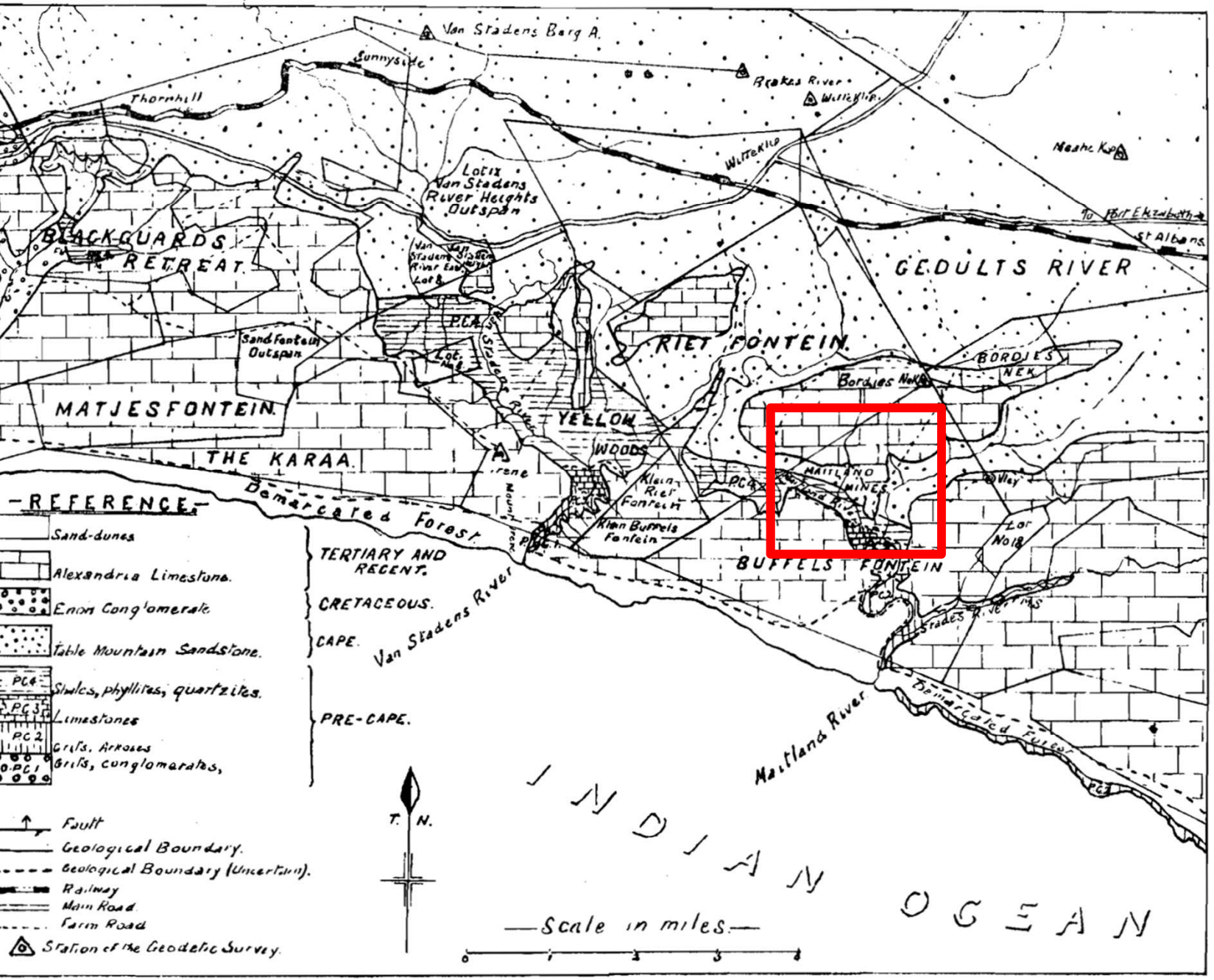
The British-born Australian geologist Edward J Dunn (1844-1937) spent a number of years, fron 1871 to 1886, mapping and examining variou prospects in the Cape Colony, at the behest of th Cape government. Dunn (1873) mentioned a vis to the Maitland Pb deposit, which he regarded a "**quite worthless**". He was the first to repor sphalerite in the ores there, in addition to pyrite chalcopyrite ("copper pyrite"), and galena. He als reported, for the first time, the occurrence of silver rich copper ores, running at between 10.7 an 214.3 g/t.

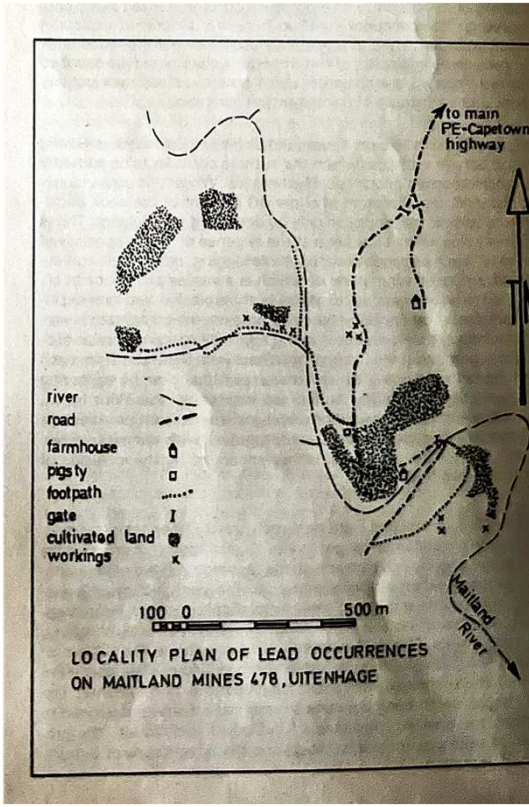
Late 19th Ce

Undated photograph (late 19th Century) showing a group of picknickers at the abandoned Maitland Mine

(National Library of South Africa, Cape Town)

GEOLOGICAL MAP OF PORTION OF THE UITENHAGE DIVISION.

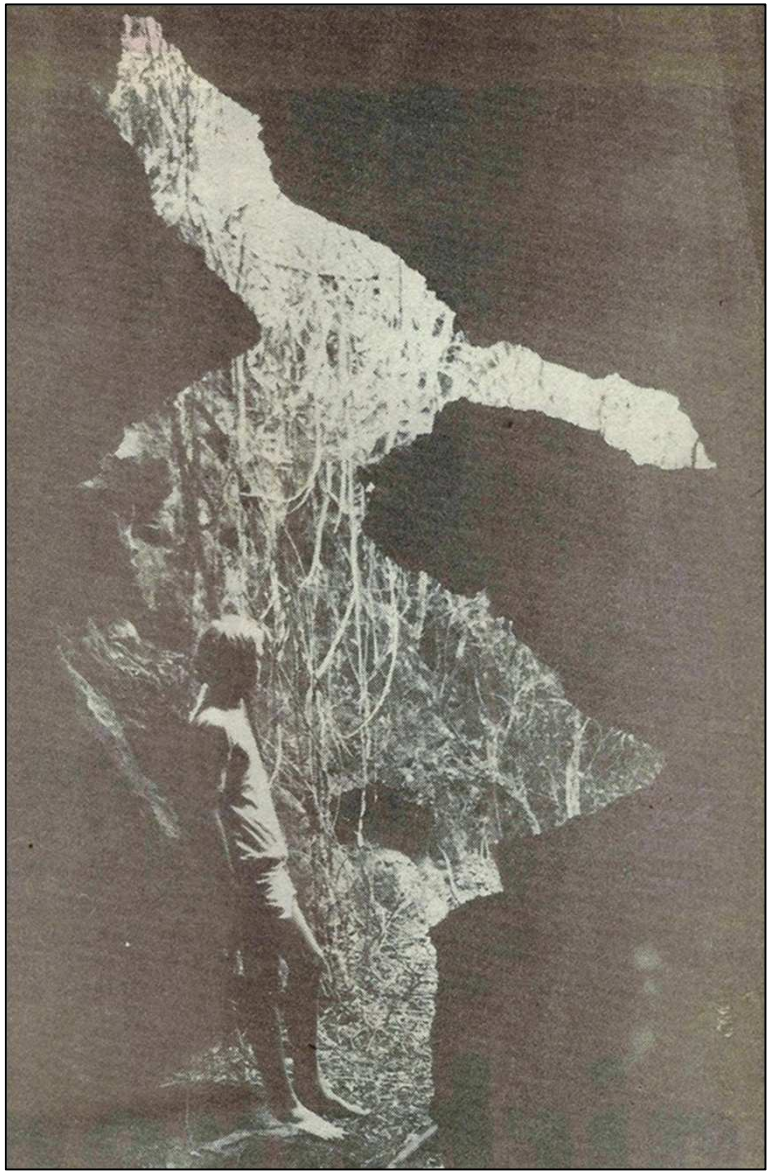


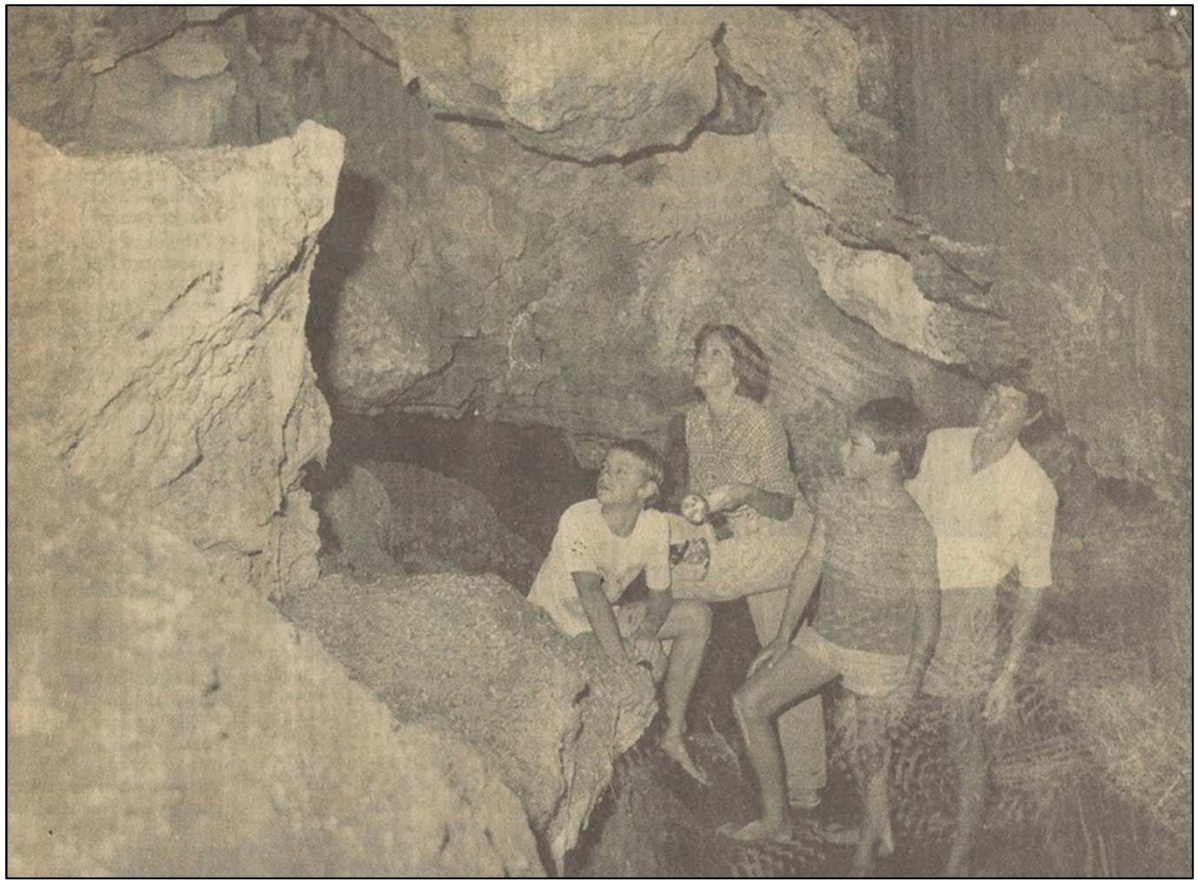


Map showing location of Maitland Pb mine within pre-Cape limestones (Amr 1935)

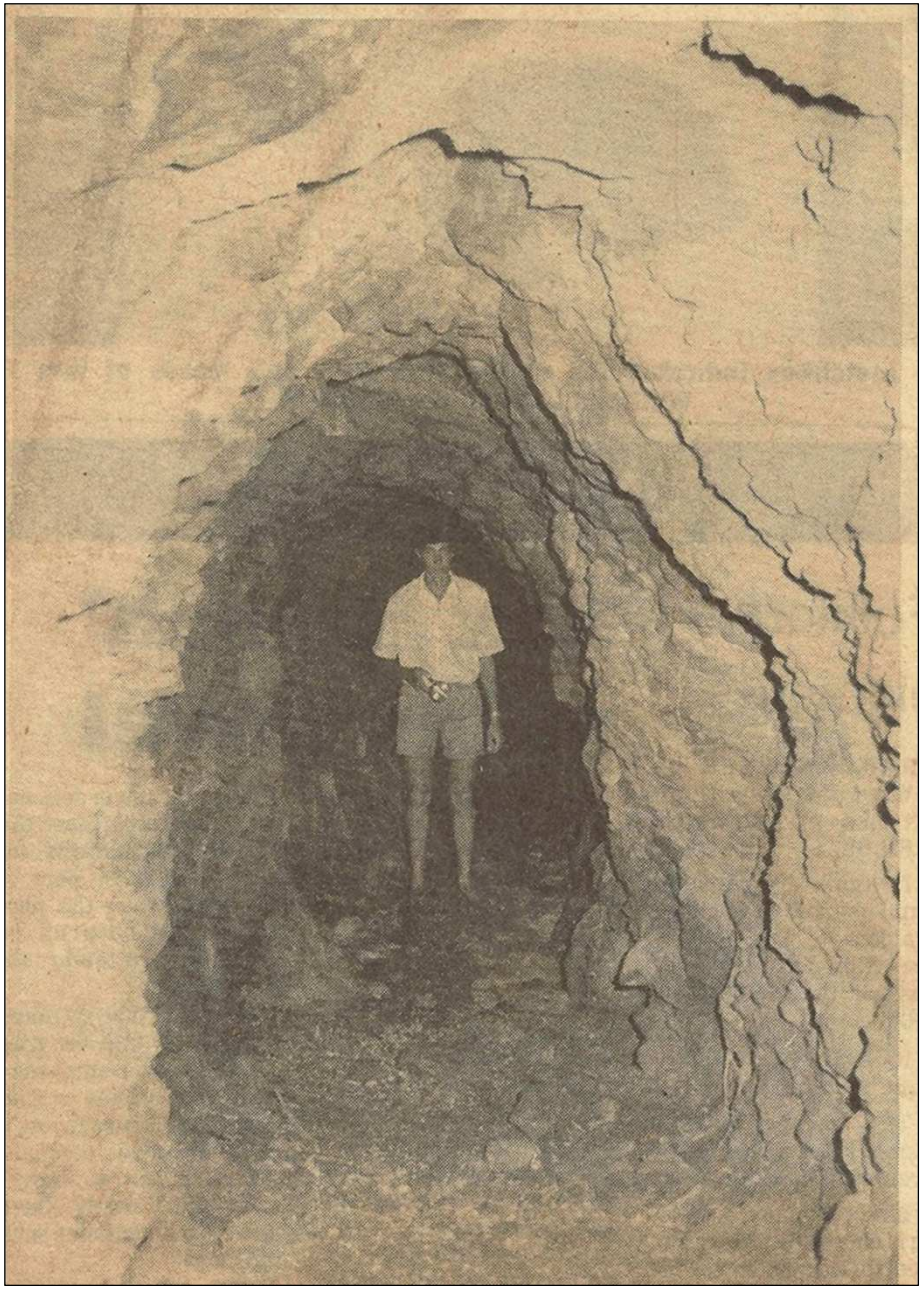
20th and 21st Century history of the area around the Maitland Mines

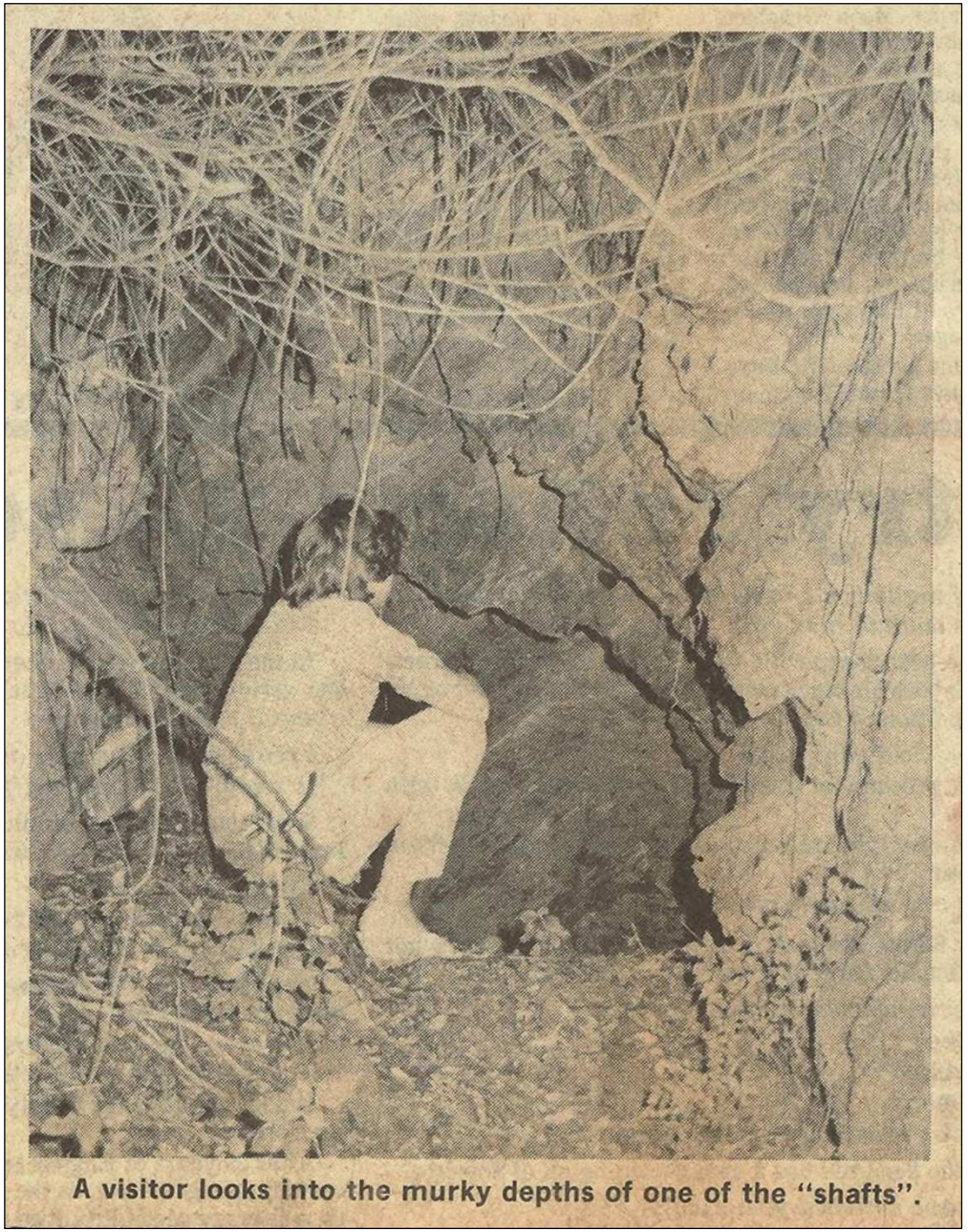
1924-1931. Renewal of prospecting by the Buffelsfontein Syndicate, without much success.
1935-1937. Reports on the geology of the pre-Cape rocks around Uitenhage and Gamtoos valley by Amm (1935), Frankel (1937) and Haughton et al. (1937).
1970-1975. Geochemical and geophysical exploration by Anglo-American Corporation.
1976. B.Sc. Honours Project on the geology of Maitland Mine, by S. Gray, at the University of Port Elizabeth.
2000. Le Roex (2000) published 1:50,000 scale maps of Port Elizabeth-Uitenhage area.
2006. Gaucher and Germs (2006) found acritarchs in Sardinia Bay and Gamtoos areas, giving Neoproterozoic ages for these rocks.
2016. First U-Pb zircon ages of rocks of the Gamtoos Valley by Miller et al. (2016) show the rocks to be Cambrian in age.





Fraenkel, Wendy (1982). The Mystery of Maitland Mine. East
Province Herald, Port Elizabeth, South Africa, 22nd May 1982





A visitor looks into the murky depths of one of the "shafts".

Oxidised malachite-
staining around adi

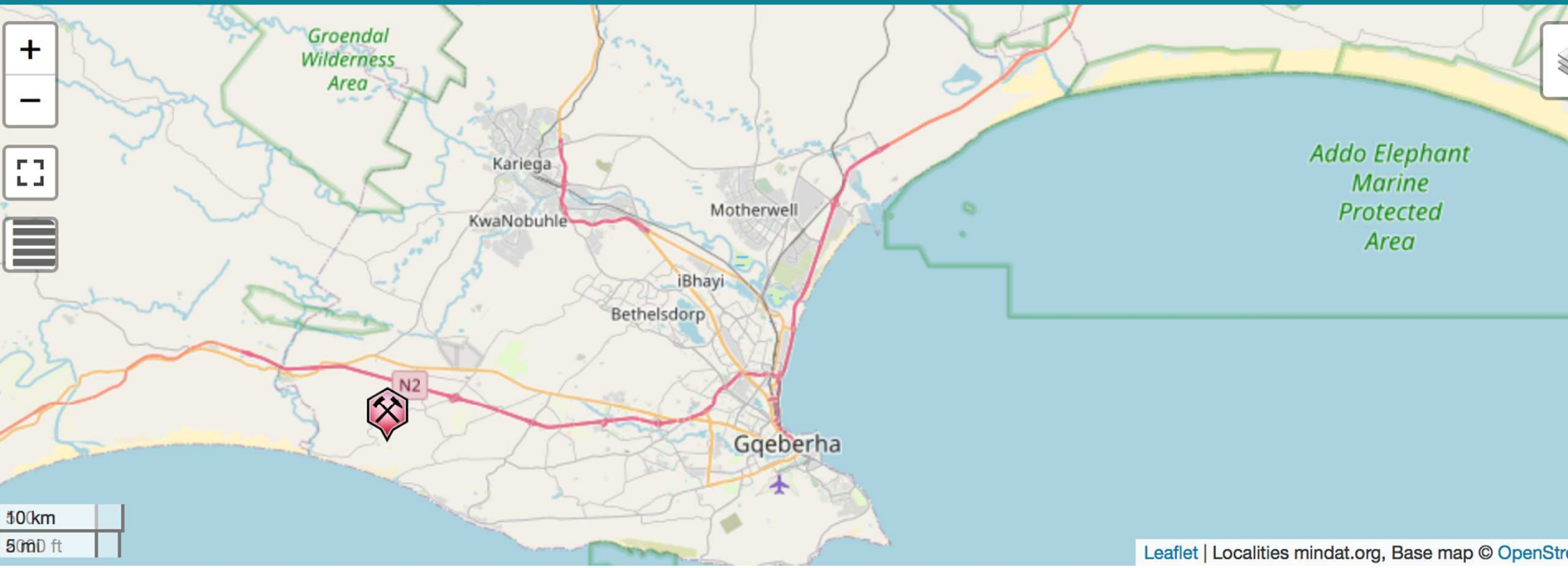
McClelland, D. (2018). Port Elizabeth of Yore: the Maitland Mines. http: //the casualobserver.co.za/port-elizabeth-yore-maitland-mines/,10 May 2018.

Efflorescences of aragonite

“ENTER AT OWN RISK”

Maitland Mines, Gqeberha, Nelson Mandela Bay Metropolitan Municipality, Eastern Cape, South Afri

Photos Maps Search



Location
Eastern Cape > Port Elizabeth > Maitland

Add to travel planner

DESCRIPTION

The 250 hectare Maitland Nature Reserve, which is accessed via the Seaview Main Road to Maitland River Mouth, comprises dense indigenous coastal forest, abundant birdlife, an old wagon road which leads to Maitland lead mines, a variety of small animals such as bushbuck, and blue duiker as well as the famous giant Maitland sand dunes.

The reserve offers three nature trails which provide easy access into the dense forest, namely; The Sir Peregrine Maitland Nature Trail which is a 3 km self-guided trail along the old wagon road; the De Stades Nature Trail which is 9 km long trail and provides magnificent view of St Francis Bay and Maitland dunes; and lastly the Igolomi Trial which is a 4km walk passing through some of the thickest sections of the dense forest.

Download the trail guide here:

Contact / Reservations
Maitland Nature Reserve Trails

Location
Eastern Cape > Port Eli

Add to travel planner

On the Maitland Nature Reserve Trails website, there is no mention at all of the abandoned Maitland Lead Mines, which have been mostly forgotten!

DESCRIPTION

The 250 hectare Maitlar
Mouth, comprises dens
Maitland lead mines, a
giant Maitland sand dun

The reserve offers three na
Nature Trail which is a 3 kr
and provides magnificent v
passing through some of th

Download the trail guide he

Contact / Reservations
Maitland Nature Reserve Trails

However, that's not all, Folks!!.....

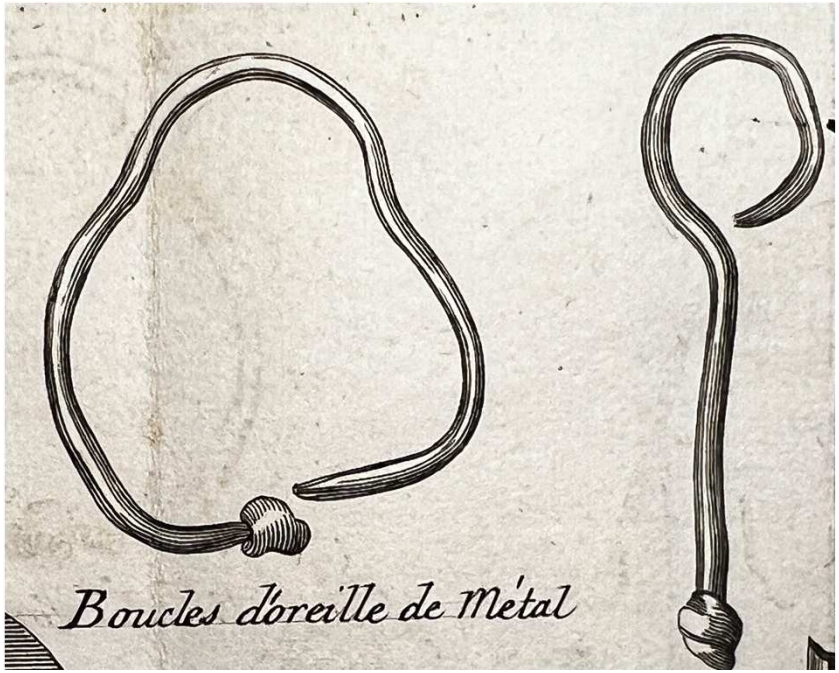
Some new information about the origin of the Maitland lead mines

Although the Maitland deposit, discovered in 1792, is the oldest historically documented Pb-(Cu-Zn-Ag) prospect in the Eastern Cape, there is evidence that indigenous inhabitants had been mining some of these metals (but not lead) even earlier.

Anders Sparrman

Anders Sparrman (1748-1820)

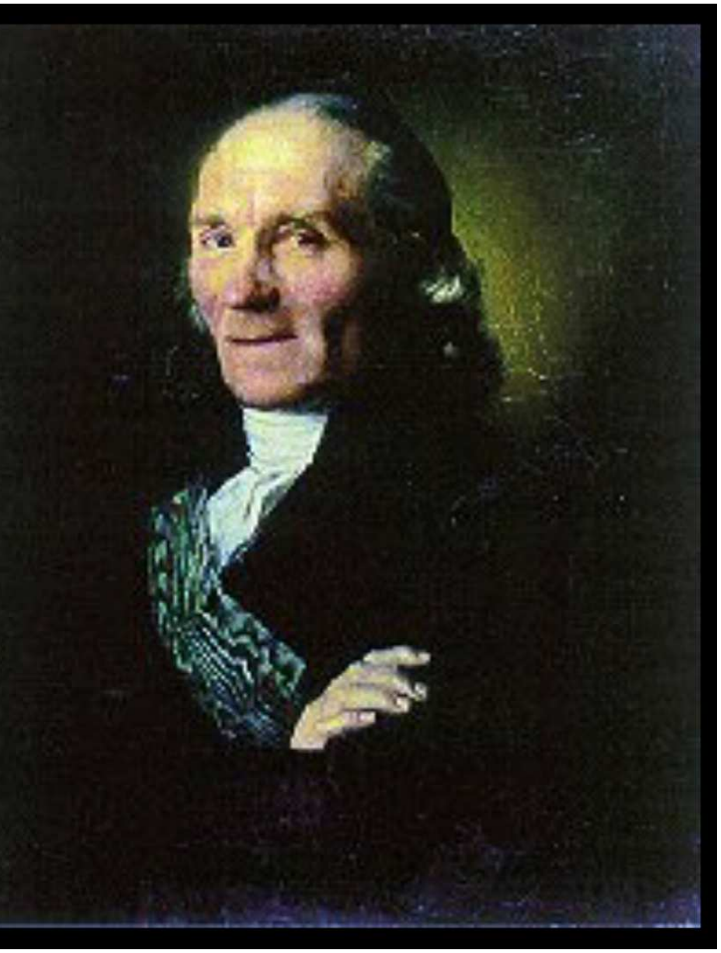
Swedish naturalist, pupil of Carolus Linnaeus



Ear rings made of copper and silver (Sparrma 1785). Sharad Master Collection

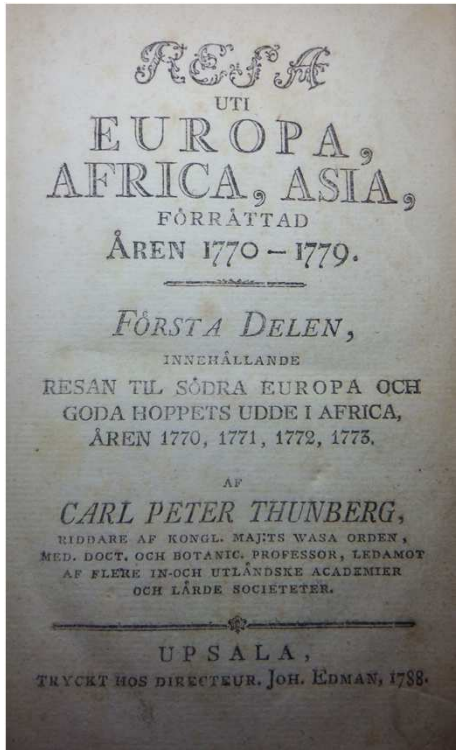
Swedish naturalist Anders Sparrman (a pupil of Carolus Linnaeus), who had travelled extensively in the Cape in 1775-1776, had obtained a ring from a tribe called the “Tambucki”, made of a meta resembling “pistol gold” (i.e., 21-carat gold). However, an analysis by the Swedish Director of Mines Von Engeström, found it to be a mixture of silver and copper (Sparrman, 1785). One of these rings is in the Sparrman ethnographic collection in Sweden. The “Tambucki” referred to by Sparrman (1785) were also known in the 19th Century as “Tambookie”, which is the Khoisan name for people who are known today as the AbaThembu, a Xhosa clan, among whose famous members were Nelson Mandela and Walter Sisulu. Sparrman (1785, 1977) referred to the “Tambuki metal mines”, which he had planned to visit, but did not see.

AbaThembu: a Xhosa clan whose members included famous South African struggle heroes Nelson Mandela and Walter Sisulu.



Carl Peter Thunberg (1743-1828)

Another Swedish botanist (and friend of Sparrman), Carl Peter Thunberg had reported that in 1772 he had been shown ear rings made of copper mixed with silver at the Gamtoos River (not far from the Maitland Mine, where Ag-rich Cu ores occur).



RESA
UTI
EUROPA,
AFRICA, ASIA,
FÖRRÅTTAD
ÅREN 1770 – 1779.

FÖRSTA DELEN,
INNEHÅLLANDE
RESAN TIL SÖDRA EUROPA OCH
GODA HOPPETS UDDE I AFRICA,
ÅREN 1770, 1771, 1772, 1773.

AF
CARL PETER THUNBERG,
RIDDARE AF KONGL. MAJ:TS WASA ORDEN,
MED. DOCT. OCH BOTANIC. PROFESSOR, LEDAMOT
AF FLERE IN-OCH UTLÅNDSKE ACADEMIER
OCH LÅRDE SOCIETETER.

UPSALA,
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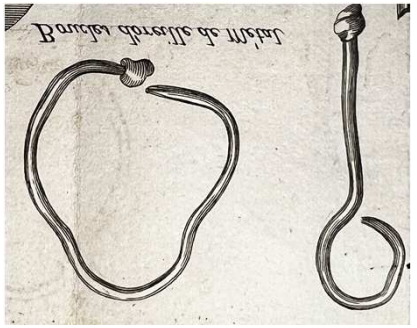
f locally sourced, then the copper and silver ear rings seen by both Sparrman and Thunberg raise the possibility that the Maitland deposit originated as a mine developed by the ndigenous AbaThembu, and their workings may have been e-discovered by Major Von Dehn in 1792.



Thank you!

Dziękuję!

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