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REPORT NO.C.W. 22.

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DEPARTMENT OF MINES

SOUTH AUSTRALIA.

NEWLY DISCOVERED FLUORITE VEIN NEAR PLUMGAGO STATION CROCKER WELL AREA.

- SUMMARY -

High grade fluorite outcrops as a vein averaging 2—3 feet wide for a distance of 40 feet. This deposit would yield approx. 10 tons of fluorite per vertical foot of depth, of a quality suitable for use in the steel industry as a flux, or for glass and enamel manufacture if hand-sorted.

Allowing for cartage costs to the main ore buyers in Sydney, the deposit could be worked profitably on a small scale by open trenching.

- INTRODUCTION -

A small vein-type deposit of purple fluorite was recently found near Plumbago Station by Departmental Prospectors J. E. Johnson and H. E. Campana during systematic surveys in this area for uranium and other minerals. This occurrence is half a mile west of the formerly productive Plumbago fluorite mines, which were last operated in 1933, and from which a total of 581 tons of fluorite were taken from open cuts for marketing in the steel and glassware industries.

- PLAN -

Geological Plans .....US373.

- LOCALITY. -

The fluorite deposit is located on the western slopes of a low hill approximately 150 yards south of the woolshed at Plumbago Station homestead, distant 40 miles west of north by

station tracks from Mannahill or Olary Railway Sidings. The site is within 150 yards of existing tracks and could readily be made accessible to 2 wheel drive vehicles.

- GEOLOGY. -

The mineral deposit occurs in Archean rocks consisting dominantly of mica schists and granitoid gneisses, and intruded in places by pegmatitic granite. Bedding foliation in the schists is directed NE-SW, and dips steeply to the south-east.

The fluorite mineralisation follows along a narrow and well-defined shear zone directed south-easterly from the margin of the Archean outcrops for a distance of 200 feet. At the eastern end of the deposit, there is a width of up to 3 feet of massive fluorite, with minor off-shoots following subsidiary E. W. shears, but towards the west the fluorite is in subordinate amounts as disseminations in schistose rock. Malachite staining is common at the western end of the shear zone.

Fresh samples of the fluorite are deep purple coloured, but the surface outcrop is colourless due to bleaching. The mineral does not fluoresce under U.V. lamps operated on normal wavelength.

- SIZE AND GRADE -

The potentially workable fluorite is restricted to the veins of relatively pure mineral at the eastern end of the lode. This portion of the deposit extends for 40 feet at an average overall width of 2-3 feet, as detailed in the accompanying map at a scale of 6 ft. = 1 inch, and would yield approximately 10 tons of fluorite per vertical foot of depth mined. A channel sample A-A' was taken across the vein as representative of the fluorite obtainable by selective mining and analysed as follows —

Ca F2	97.8%
$Si O_2$	1.5%
Fe2O3	0.19%

This is an exceptionally pure fluorite which with careful hand-sorting would be suitable for special uses in glass and enamel manufacture and the chemical industry. The run of mine material would be satisfactory for the important use of fluorite as a flux in iron ore smelting, the market specifications of which require a minimum of 85% CaF_2 and a maximum of 10% SiO_2 and 1% Fe_2O_3 impurities.

- MARKET. -

Australian consumers of fluorite rely principally on northern Queensland and to a lesser extent Victoria for their needs. Chief ore buyers are F. Hambridge Pty. Ltd. of Sydney, and Minerals Pty. Ltd. (Victoria.) There is only a very limited market for the mineral in South Australia.

The price for fluorite (minimum 85% CaF_2) in Sydney increases from £22.10.0 per ton according to grade. Freight from Mannahill to Sydney is of the order of £8 per ton.

- RECOMMENDATIONS -

The prospect is capable of producing a small quantity of high grade fluorite and could be worked profitably for a few months as a one or two man operation. Details of its occurrence should be passed on to local prospectors.

D. Kenny

GEOLOGIST

ASSISTANT GEOLOGIST.

DK.RR./JA

29/7/54.

PLUMBAGO FLUORSPAR PROSPECT
GEOLOGICAL PLAN
SCALE 40 FEET TO 1 INCH
GEOLOGY BY D. KING

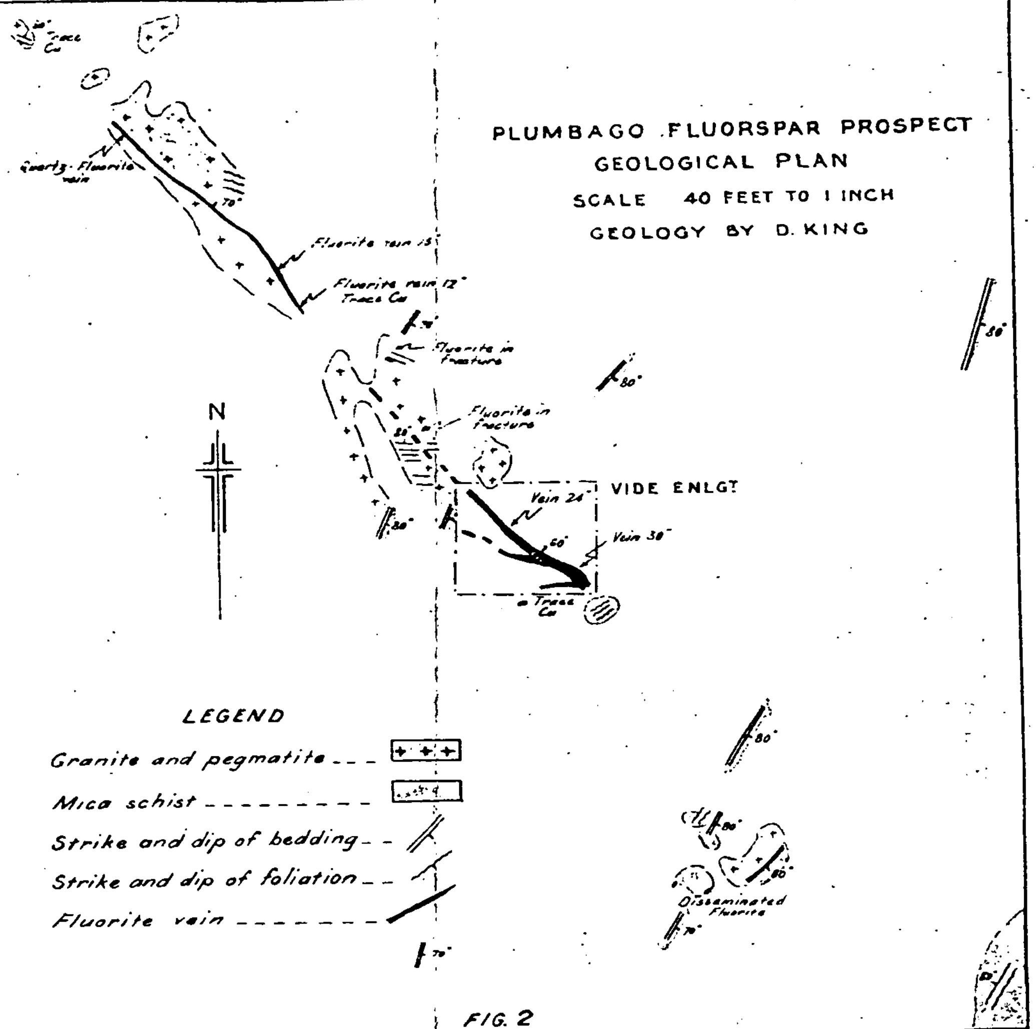

FIG. 2

ENLARGEMENT
PORTION OF FLUORITE VEIN
SCALE 6 FEET TO 1 INCH
DETAIL MAPPING BY R. ROWLEY

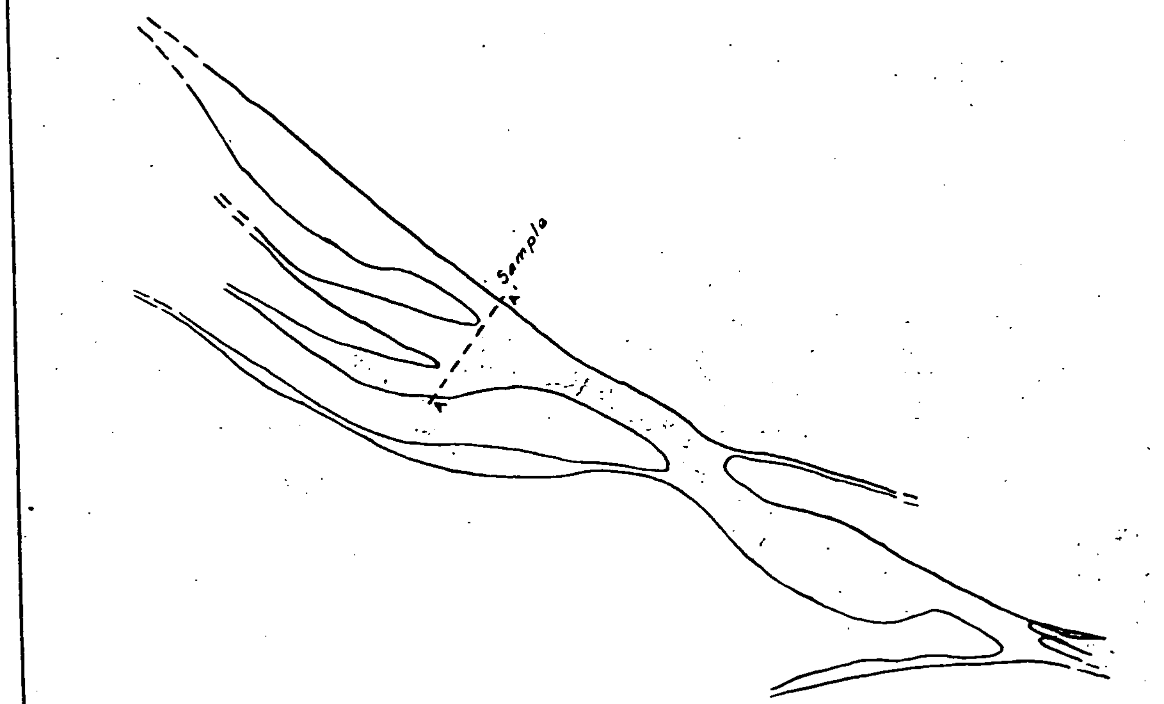

FIG. 3

PLUMBAGO FLUORSPAR PROSPECT
LOCALITY PLAN
SCALE 4 MILES TO 1 INCH

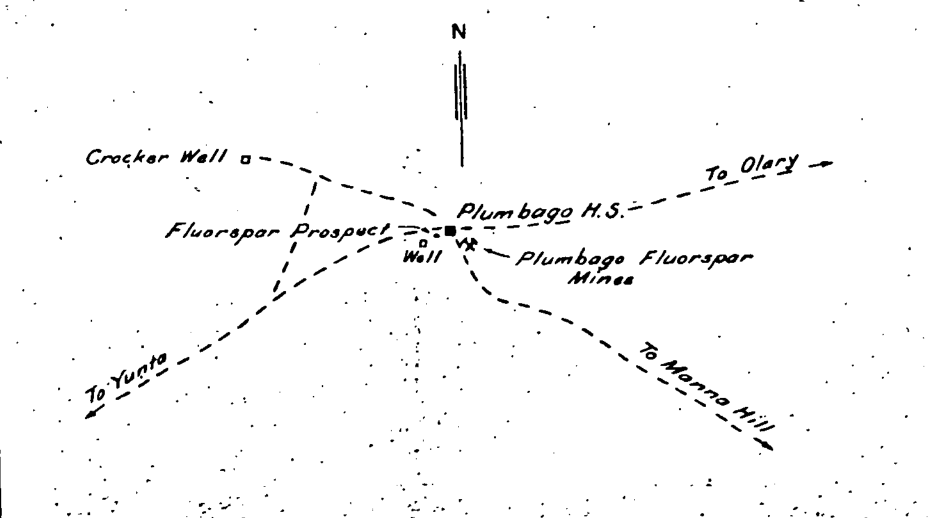

FIG. 1

To accompany report by R. Rowley.

PLUMBAGO FLUORSPAR PROSPECT
CROCKER WELL AREA

S. A. DEPT. OF MINES

R.R.

US 373

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