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1982/1. An occurrence of ferritungstite at Interview River.

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Abstract

The occurrence of ferritungstite in a wolframite-scheelite-quartz-tourmaline-muscovite association at Interview River has been confirmed by X-ray powder diffraction analysis.

INTRODUCTION

During an investigation of the Interview River tungsten deposits, a yellow-brown ochrous mineral was observed on several samples of the wolframite-scheelite ore. At first, the mineral was thought to be tungstite ($WO_3.H_2O$) which is reported to occur in a wolframite-scheelite-quartz association at the North Pieman Heads (Department of Mines, 1970, p. 102). However, spectrochemical analysis, using a Vreeland direct reading comparator spectroscope, showed the presence of Ca, Fe, and W, and subsequent X-ray diffraction analysis revealed the mineral to be ferritungstite which has the composition $Ca_2Fe^{II}_2Fe^{III}_2(WO_4)_7.9H_2O$ (Richter *et al.*, 1957).

LOCATION, HISTORY, AND ACCESS

The Interview River tungsten deposits are situated 12-14 km north of Pieman Head, between Chimney Creek and Interview River and about three kilometres inland from the west coast of Tasmania (fig. 1). Wolframite and scheelite were discovered about 1890 (Waller, 1902), and although the deposits have been worked sporadically since, total production probably would not exceed 10 t WO_3. There are no roads in the vicinity of Interview River, and access to the deposits is by rough coastal tracks from either Sandy Cape in the north, or Pieman Head in the south (fig. 1).

GEOLOGY

The lodes of the Interview River tungsten deposits are located within equigranular, fine to medium-grained biotite granite/adamellite of the Devonian Pieman Granite (fig. 1; Gee *et al.*, 1969). The lodes occur as a series of quartz veins filling fractures along a linear zone two kilometres in length and trending 350°M.

The main prospect is at Kennys workings (fig. 1; CP245985) where the lode trends 025°M with individual veins striking 030°-050°M and dipping 75°-85°SE. The veins are generally 0.20-0.30 m thick, and crop out over a strike length of more than 200 m. The granite is greisenised adjacent to the veins.

In addition to milky grey quartz, the veins contain abundant muscovite and tourmaline with wolframite and scheelite and minor sulphide minerals (pyrite, arsenopyrite, and chalcopyrite) and feldspar (Waller, 1902; Henderson, 1943). Wolframite occurs either as isolated blades up to 100 mm long, or as rich aggregates or bunches distributed sporadically throughout the veins. Scheelite is generally associated with wolframite aggregates, but also occurs as aggregates in quartz.

NATURE OF OCCURRENCE OF FERRITUNGSTITE

The material investigated was collected from Kennys workings, from a vein exposed in a trench approximately 50 m north of the south branch of Chimney Creek which traverses the workings. It is catalogued as specimen

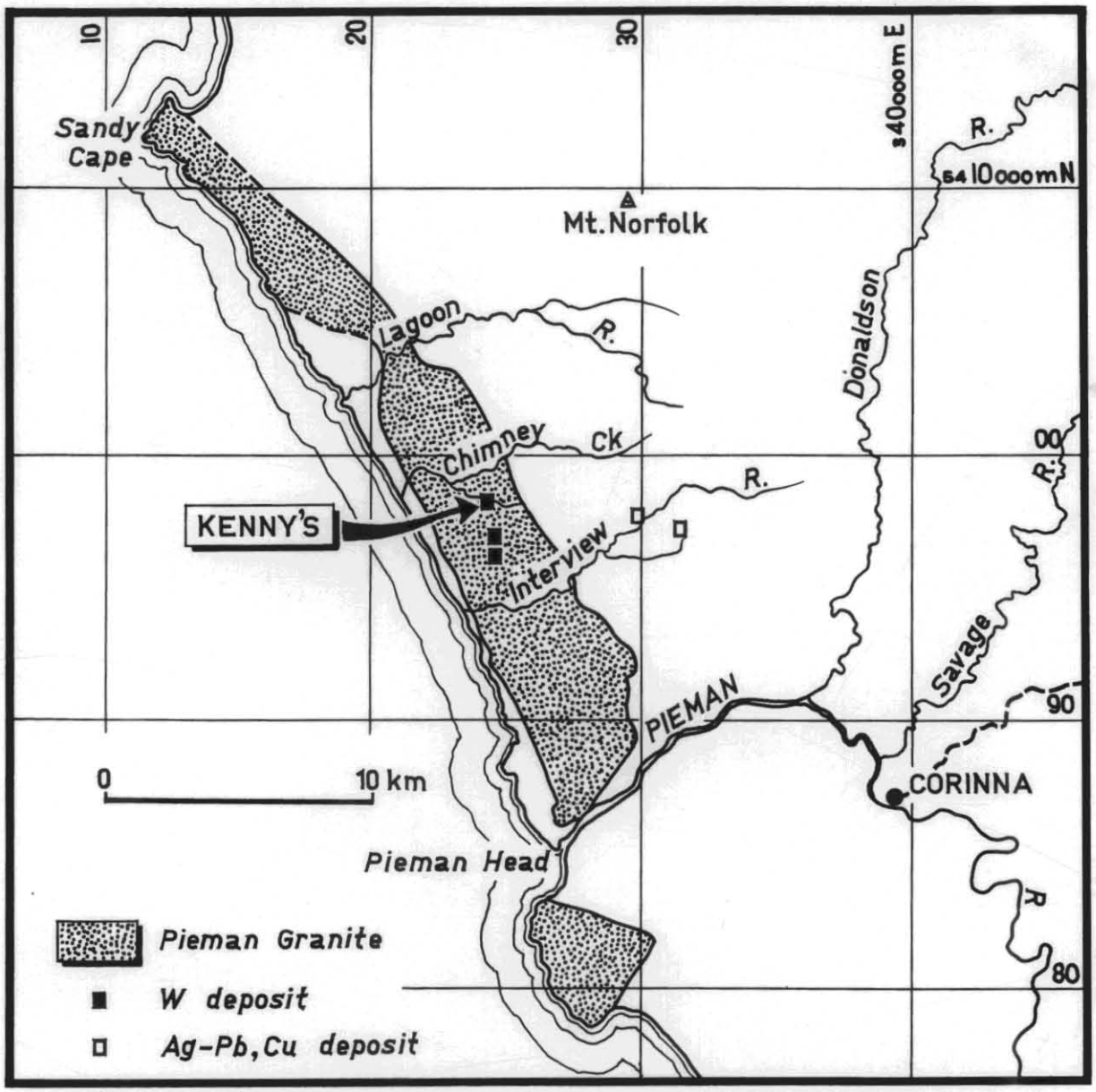

Figure 1. *Interview River tungsten deposits.*

5 cm

number 101058 in the Department of Mines ore mineral collection.

The specimen consists of wolframite, scheelite, quartz, tourmaline and ferritungstite. Fractures in wolframite and scheelite are filled with yellow-cream ochrous material and cavities(?) in intermixed wolframite and scheelite are filled with bright yellow ochrous to earthy ferritungstite. Under the microscope, ferritungstite occurs as bright yellow, translucent, very fine-grained crystalline material with a semi-vitreous lustre similar to the associated scheelite. The ferritungstite appears to be more intimately associated with the scheelite than with wolframite.

X-RAY DIFFRACTION ANALYSIS

An X-ray powder diffraction analysis (over the range 14°-65°2θ) of the bright yellow material gave all of the main peaks for ferritungstite (fig. 2) as listed by Richter *et al.* (1957). Subordinate peaks in the X-ray diffractogram indicate the presence of scheelite, and possibly some quartz (fig. 2). The highest intensity peak at 28.80°2θ (3.10 dA°) is due to a combination of a major ferritungstite peak and the main scheelite peak.

Several other X-ray powder diffraction scans of yellow ochrous material on specimens from Interview River all indicated mixtures of scheelite and ferritungstite, and there was no indication of the presence of tungstite.

ACKNOWLEDGEMENT

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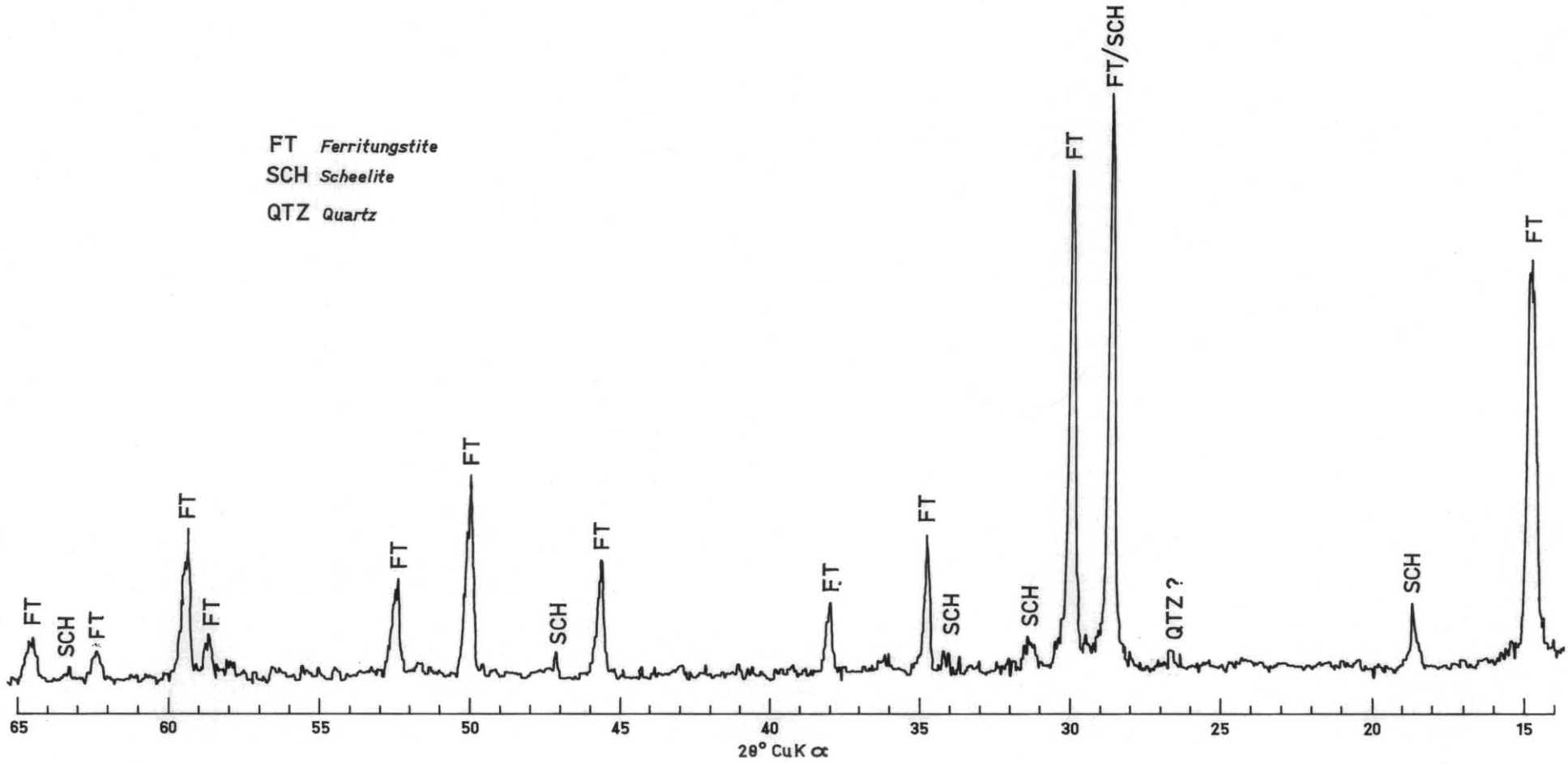

Figure 2. *X-ray diffractogram, specimen 101058.*

5 cm