

PATS RIVER TIN-FIELD - FLINDERS ISLANDLocation and Access:

Pats River alluvial tin-field is situated on Flinders Island, three miles north-north-west of Whitemark. A formed and partly metalled road connecting with the area deviates from the main coastal road at $1\frac{1}{2}$ miles north of Whitemark.

Topography:

The area is represented by an arm of the west coast plain extending north-easterly up the valley of Pats River and its tributaries. It has an undulating surface and is dissected to a slight extent by South Pats River and North Pats River which join to form the main stream at one mile from the mouth.

History:

Tin was first discovered in Officer Creek, a small affluent of North Pats River, in the year 1896 and reward sections of 80 acres each were granted to J.L. Vivieux and C.M. Officer. During the following four years several other areas along North Pats River were acquired and small workings were established. In 1900 a section was taken up on the fall into South Pats River and a little sluicing was accomplished. At intervals from that date to the present (1935) small amounts of tin have been produced from the field.

Geology:

The bedrock in the greater part of the area is Devonian granite. It is intrusive into Cambro-Ordovician rocks, the junction being to the north of North Pats River.

Tertiary grits, gravels and sands containing tin oxide occur in Pats River valley in the vicinity of the workings and adjacent regions. Recent gravels and alluvium are deposited at places along the course of the stream.

The Workings:

Along the slopes bordering North Pats River and its tributaries numerous small alluvial workings have been opened at different periods from stream level to heights of 50 feet. The majority of these are contained within the mineral sections which have been taken up from time to time.

The tin-bearing deposits consist generally of fine quartz, grits, sands and a little clay, distributed through which are gravels ranging from one inch to two feet in size, with an average size of three inches. In places bands occur in which the gravels predominate. The pebbles consist chiefly of waterworn quartz in which tourmaline is sometimes present but quartzite and granite pebbles are also found.

These deposits vary in depth from three (3) to 40 feet, and are thickest in the lower parts of the area towards the west. Large areas of the lower portions of the grits and gravels are cemented and in places are extremely hard. Very few attempts have been made to work these consolidated deposits, so that in many instances the workings have not been carried down to the underlying granite.

The numerous small and scattered workings suggest that the tin contents of these alluvials is erratically distributed. Small rich areas have been obtained but only over short lengths. Well defined gutters are rare occurrences and the tin is often concentrated in pot-holes. The tin is generally of fine grain size and only slightly water-worn. It is usually black in colour but ruby and resin varieties also occur. Ilmenite, magnetite and zircon are the common associates of the tin.

The only ground being worked at present is that on the 5 acres mineral lease No. 11100/M in the name of J. Walker. A small face 1 1/2 chains by 1/2 of a chain has been opened up at 2 chains north-east of the south-west corner of the section, where two men are treating the deposit by ground sluicing methods. The deposit as exposed in the workings consists of one foot of sandy loam underlain by four feet of fine quartz gravel and clay, through which are distributed quartz pebbles averaging 2 1/2 inches in size. The latter are more concentrated in the bottom 12 inches and it is from this portion that most of the tin is being obtained although a little tin is contained in narrow seams higher up in the drift. It is stated that the ground averages half a pound of tin oxide a cubic yard. Granite bedrock is not exposed here and old workings in the immediate vicinity expose cemented grits and gravels extending to a maximum depth of 15 feet.

Gravels can be traced at surface in parts of the undulating country between North Pats River and South Pats River. On the fall to the latter shallow alluvial workings expose a small area of partly cemented grits and gravels to a depth of six feet above granite bedrock.

On the open grass-tree plain to the north of North Pats River quartz gravels have been penetrated in several places by pits to a depth of 4 feet, but have not exposed the rock bottom.

Method of Working:

In most instances ground sluicing appears to have been the method by which the tin has been won. Hydraulic sluicing with nozzles was attempted in a small way in several places but was not undertaken extensively owing to lack of water and insufficient head pressure.

Water Supply:

Want of a permanent and adequate water supply to enable the deposits, particularly the cemented portions, to be hydraulically sluiced in a large way has mitigated the many attempts to successfully mine the alluvials of Pats River tin-field. Many years ago a water race (1770/W) was constructed over a distance of three miles from the head waters of South Pats River to workings on the fall to North Pats River. This scheme has been augmented by other shorter races but has proved inadequate for the requirements.