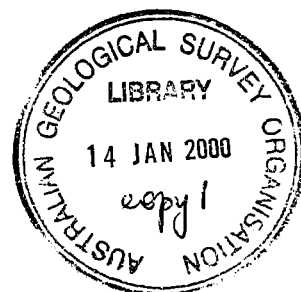


RECORD 1946/1

EXAMINATION OF A SAMPLE OF POWDER SUBMITTED BY THE POLICE DEPARTMENT

by

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DEPARTMENT OF SUPPLY & SHIPPING

Mineral Resources Survey Branch

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POLICE DEPARTMENT.

Report No. 1946/1.

The sample was submitted by Sgt. Richards in the form of a powder mounted on a glass slide and covered by a cover glass.

The unknown powder was examined under a high power microscope. It was seen to consist of fragments of very small size. The fragments were angular in outline. The majority were either water white and transparent or faintly brown and transparent. Almost all fragments were optically isotropic. The obvious similarity of the majority of the fragments indicates that they are composed of the same substance.

A piece of glass was also submitted by Sgt. Richards. A small portion of this was crushed to a powder and mounted on a glass slide. This powder was examined under the high power microscope. The fragments were seen to be similar to those of the unknown powder in appearance, shape and colour, and they were also isotropic.

An attempt was made to determine the refractive index of the unknown powder. By trial and error a liquid was prepared, by mixing paraffin and α -monochloronaphthalene, with a refractive index very close to that of the powdered glass sample. Several samples of the unknown powder were examined in this liquid. Owing to the extremely small amount of the powder available, the fact that some of it did not wet and the contamination of the sample by dust in the air, I was unable to establish definitely whether or not the unknown powder had a refractive index comparable with that of the liquid.

The definite evidence on which a diagnosis of the unknown powder has to be based are -

1. The optically isotropic character of the majority of the fragments.
2. The angularity of the fragments.
3. The transparency of the majority of the fragments.
4. The obvious similarity, and therefore probable identity of the majority of the fragments.

The material is not a soil. None of the ordinary rocks used for road metals, when crushed, would reduce to a homogeneous isotropic powder such as the sample. A fresh volcanic glass might do so, but such a rock is not known to occur in the A.C.T. and would not be suitable for road metal.

It is highly probable that the unknown powder is powdered artificial glass but this could not be established definitely.

All properties and characteristics that could be checked, corresponded to those of the sample of powdered glass. The determination of the refractive index would have proved if the unknown powder was identical with glass sample, but the amount prevented the definite determination of the index.

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CANBERRA.
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