clinopyroxene-bearing rocks within the prehnite stability field. This conclusion is contrary to previously published views (Wells and Bishop, 1955; Hall, 1965) in which K-metasomatism was invoked to explain the association, but agrees with Phillips and Rickwood (1975).

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The Avondale (New Zealand) meteorite discredited

AT about midday on 9 October 1956 Mrs. M. Munyard of Avondale, Auckland, was nearly struck by a falling object while weeding in her garden. The object flashed across her right shoulder and face and struck the ground near her feet. The fall was accompanied by a whining sound and a loud bang. After the incident had been described to a neighbour, the garden was searched and a small dark-grey fragment, just under 10 mm in diameter, was found in the area of the fall. The fragment was sent to Auckland University for examination and a thin section was made from part of the sample, leaving a piece about 6 mm in diameter. Both thin section and remaining fragment were sent to the Australian National University where it was identified as a metal-free chondrite. Because of the very small size of the fragment, and the absence at that time of any suitable non-destructive method of analysis, identification was based on physical appearance.

The 'meteorite' was reported in a local journal (Warner, 1957) but further examination being impossible, the fall was not reported outside New Zealand. However, early in 1974 interest in the Avondale 'meteorite' was renewed during the preparation of an article on New Zealand meteorites (Gregg, 1974) and I learned of the existence of the

fragment. Mr. L. A. C. Warner kindly agreed to let me examine the 'meteorite' on the electron probe at New Zealand Geological Survey, and I hoped to analyse and describe the 'meteorite' and more fully record its fall.

The fragment when I received it was approximately 6 mm in diameter, concavo-convex, with a dull, dark-grey surface covered in places with a light-grey efflorescence and spherules of a dirty white material. The surface was slightly porous, and the spherules closely resembled chondrules. The sample was non-magnetic, but was found to be highly conducting when a small portion of the edge was polished to facilitate the electron probe examination. The polished edge showed a metallic lustre and the material had a low polishing hardness. Determination of specific gravity (*ca.* 6·0) also suggested that the fragment was metallic. Analysis on the electron probe showed that the main part of the sample consists of zinc, containing a small amount of aluminium. The spherules are composed of zinc chloride, which was also detected in pores on the surface. It is possible that the fragment is part of an old battery.

It is quite probable that a meteorite did fall, but that the true meteorite was not found, or may have completely disintegrated on impact. The possibility that the fragment came from a passing aircraft should also be considered, although inquiries have shown that no accidents were reported on that day. Identification of the fragment as a meteorite is understandable when the appearance of the sample, together with the eye-witness report, is considered. The spherules look very much like chondrules, and being soluble, they were removed during thin sectioning and the resulting slide has a texture that closely resembles a chondritic meteorite. However, the original report comments on the opacity of the thin section.

The electron probe was not available at the time of the original identification, and the development of this non-destructive analytical tool has, regrettably, eliminated the Avondale 'meteorite'.

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