Records of the Australian Museum (2002) Vol. 54: 249–254. ISSN 0067-1975

The Dunbogan L6 Chondrite: A New Meteorite Fall from New South Wales, Australia

P.G. FLOOD[1], P.M. ASHLEY[1] AND R.E. POGSON[2]

[1] Earth Sciences, University of New England, Armidale NSW 2351, Australia
pflood@metz.une.edu.au
pashley@metz.une.edu.au

[2] Mineralogy and Petrology Section, Australian Museum, Sydney NSW 2010, Australia
rossp@austmus.gov.au

ABSTRACT. A meteorite crashed through the roof and ceiling of a house at Dunbogan on the north coast of New South Wales, Australia, on 14 December 1999, and 30 g of fragments were recovered. The fall was observed by a girl at Tinonee, 50 km to the SSW. The meteor was observed in the mid northern sky at about 22h00 East Australian DST (GMT + 11 hrs), moving in a SSE direction. In mid-flight the meteor broke into at least 3 fragments. Detailed mineralogical and petrological examination of the meteorite have revealed that it is comparable to an L6 ordinary chondrite with mean olivine composition Fa_{25} and pyroxene Fs_{21}.

FLOOD, P.G., P.M. ASHLEY & R.E. POGSON, 2002. The Dunbogan L6 Chondrite: a new meteorite fall from New South Wales, Australia. *Records of the Australian Museum* 54(2): 249–254.

At 22h05 East Australian DST (GMT + 11 hrs) on Tuesday, 14 December 1999, an object crashed at Dunbogan (c. 152°50'E, 31°40'S), leaving a 30 × 50 cm hole in the roofing tiles and timber-clad ceiling, coming to rest on the living-room floor of the home of Mr Paul Hancox (Fig. 1). The object, with calculated volume of 9 cm^3 and weighing a minimum of about 30 grams, broke into several fragments on impact with the roof. The Australian Museum and the University of New England were each provided with one small fragment for study. The aerial fragmentation and later impact were not observed by the same person. No other persons reported rumbles or explosions. No other fragments have been located on the house roof or nearby. The name *Dunbogan* has been approved by the Meteorite Nomenclature Committee of the Meteoritical Society (Grossman & Zipfel, 2001).

Recoveries from observed meteorite falls are not common, and this is only the fourteenth such recovery from Australia. Meteorite falls which cause structural damage to buildings are even more significant, because their rarity generates considerable scientific and popular interest. For these reasons it is important to document the meteorite involved.

The Fall

An eyewitness account by Elyse Smith, a girl residing at Tinonee, 50 km south of the impact site, reported observing a bright object "like a huge flamy ball crossing in a direction from the middle northern sky. After a few seconds it broke into one large fragment and two middle-sized bits with a lot of rubble fragments flying off". It was observed falling over a period of several seconds. There were no other reports of sound effects or light trails, except when it hit the house. This account suggests that more fragments of the meteorite may have fallen to Earth than were recovered.