

The Purcell Mountains Meteorite

by Chris Aikman

I still have a chunk of it up there on my bookshelf, a piece of the Purcell Mountains meteorite. It was just over two years ago that I acquired it, and its identification proved to be an instructive experience – edifying even.

I was manning the Dominion Astrophysical Observatory display booth at the British Columbia Science Fair at Robson Square in Vancouver on that October evening when I first met Mr. W. and heard his curious story. Probably it was the sample of nicely rusted iron meteorite forming a conversation piece on the table beside me (in counterpoint to the rest of our display on stellar and extragalactic astronomy) which attracted his attention; in any case, the pitted chunk of metal fulfilled its role, and he was soon telling me of his own meteorite. He'd been with his family up at Canal Flats in the Rocky Mountain trench in the early summer of that year. Somewhere around July 2 or 3 it was, his grandson witnessed a magnificent fireball dazzling across the sky, apparently ending in impact high in the mountains of the Purcell wilderness to the west. Perhaps there were other witnesses too, but the youth thought they could locate the impact site to within a kilometre or so. So a few days later, they mounted an expedition into the high country to see what they could find. After reaching the end of the roads, they proceeded some distance on foot, and eventually came upon a rocky area, bare of trees, where the rocks were splattered with a black, tarry material, extending over some five or ten metres. They chipped some of it off; later on, they'd gone back for more.

Later that month, from his home back in Burnaby, Mr. W. had sent a sample of the material to the Sedimentary Geology Lab of the Geological Survey of Canada in Calgary. They had zapped it with X-rays to test its diffraction and fluorescent properties, and had detected 18 elements present, iron being the most abundant heavy element, with yttrium and arsenic being among the trace elements. They concluded that it might indeed be a meteorite, but suggested confirmation with someone familiar with meteorites.

Astronomers are supposed to be able to do that sort of thing, so I boldly asked him to bring me a sample. Next evening, he obligingly returned to the booth with several chunks. They were hard, dark, resinlike; the smallest beads of material appeared translucent rather than opaque; bits of pine needle and other debris appeared trapped in the material where it had fused and hardened. It also had a curious organic odour, which, however, was not particularly strong or objectionable. Finally, Mr. W. showed me colour photos of the site. The black material was seen streaming down the rock faces, as if poured by some giant frosting a rocky cake but the frosting had hardened prematurely. My reaction was that this was no meteorite. But in the end I had to plead ignorance, as I probably wouldn't recognize a true C1 carbonaceous chondrite even if it stared me in the face, and who'd want to miss identifying such a rare and exotic remnant of the primitive solar nebula? I gave Mr. W. the address of the curator of the National Meteorite Collection, Geological Survey of Canada, Ottawa, and he promised to send a sample there.

After my return to Victoria, I passed some of my fragments on to our friends at the Pacific Forest Research Lab. Their biochemist tested it in a variety of acids and solvents, and concluded that the material contained carbonate and baked resins. This report I mailed on to Mr. W. and by return mail he sent me the polite, pithy report of the Curator in Ottawa. Reading it evoked my surprise, disbelief and, finally, amused acceptance: the specimen submitted consisted essentially of pack rat guano. Enclosed with the letter came an article by a retired geologist under the title "Don't Eat That, Elmer!", reprinted from the *Canadian Mining Journal*, July 1971, which describes this remarkable material. Apparently the native bushy-tailed wood rat or pack rat of the interior mountains of B.C. lives on a diet of pine cones, rich in pine resins. They colonize rocky ledges and caves for a time, leaving large deposits of droppings and urine, which bake in the sun of the hot interior summers, becoming a dark mineral-like substance, which over the years has been variously mistaken for bitumin, pitchblende, manganese, asphalt – and as a meteorite. Even trained geologists have been fooled by the guano. Apparently in 1929, a patch of the stuff was found near Kelowna and prompted a flurry of drilling for oil – into the granite on which it was found!

The excitement of our find has died down now, too. It sits there in its carton, clearly labelled "PURCELL MOUNTAINS METEORITE". Despite the great value of meteorites, no one has yet tried to steal it. Or eat it, for that matter.

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