Name	**Gordon Dawson (1929-2022)**
Occupation/role	**Geothermal Scientist, Department of Scientific and Industrial Research (DSIR)**
Years active	**1950 to 1991**

Key contribution

Developing techniques for measuring near surface ground temperatures and the associated heat flow (from 1955) – 1.0m depth on a 100m grid. He extended this to measuring heat flow from thermal features such as fumaroles, hot pools and steaming ground.

Developing field techniques for ground resistivity measurement (late 1960s). Later extended to include electromagnetic and magneto-telluric methods.

Gordon was adept at turning pure science into workable technology.

Narrative

Gordon Bedford Dawson was born in Connecticut (USA) in 1929. In 1937 the family moved to New Zealand, settling in Wellington.

Gordon worked for the DSIR for 41 years, starting in 1950 as an unqualified “technician”. With his enquiring mind and meticulous approach to everything he did, he gradually advanced through the ranks. He qualified for a NZ Certificate of Science in 1965 and was eventually promoted to the “scientist” grade, something almost unheard-of in the Public Service for anyone without at least a Bachelor degree. During his career he mixed comfortably with many world-famous scientists and with people of many different cultures. He retired from the DSIR in 1991.

While there is an obvious general relationship between “hot ground” and geothermal activity, at this time there was no established methodology to measure and relate shallow ground temperatures and obtain cohesive, contourable results. Gordon developed a 1-metre depth on a 100-metre grid system, which was used to map the Wairakei and Waiotapu geothermal areas and which became the standard. This was the first geophysical method in New Zealand that gave some demarcation, although approximate, of the extent of geothermal areas. He was tasked by Eddie Robertson, later Director-General of the DSIR, to develop methods of measuring heat flow from thermal features such as fumaroles and steaming

ground. There was no information in textbooks, so he started from scratch: building and testing the equipment until a satisfactory version was found. He developed a fibreglass funnel to cover an area of thermal ground and collect the steam passing through it. The equipment he developed in the 1950's and early 1960's continued in use for more than 40 years; later apparatus was essentially a modified version of his equipment.

Resistivity surveys proved to be by far the most powerful tool for locating and delineating deep geothermal resources - far outweighing chemical methods or any other physical methods. Gordon played a major part in the development of equipment and techniques for this work, and especially in aspects of field equipment that improved efficiency, such as a method of automatically laying and picking up cable with a moving vehicle Gordon became the field leader for the standard resistivity traversing measurements that defined the extent of almost all the high-temperature geothermal fields in New Zealand.

In addition to geothermal work Gordon was often involved in geophysical surveys to assist Ministry of Works engineers in building dams, pipelines, and transmission lines in the North Island. These included the Tongariro Power Project, the Wheao River Power Project, the Maui gas field, and many other smaller projects.

In the 1970s, under a NZ Aid programme, Gordon was part of several small DSIR teams, working with GENZL (Geothermal Energy NZ Ltd), that went to Indonesia and made resistivity surveys which delimited the geothermal fields at Kamojang, Darajat and in Bali.

In 1985 Gordon was seconded to Samoa as Scientific Advisor to the Western Samoan Government, to supervise running the seismological and magnetic Observatory at Apia. The Observatory was important because it was a part of worldwide international monitoring networks and the magnetic data collected at Apia was some of the longest recorded.

The range of subjects in his published papers attests to the depth and width of his experience.

Sources

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