

COLD WEATHER LABORATORY ON MORRONE.

IAIN LEVACK



Walkers from Braemar will now be familiar with a substantial building adjacent to the Brian Goring Trust telecommunications hut on the summit of Morrone (see Figure). This is a University outpost of the Institute of Environmental and Offshore Medicine – a field station for the study of climatic conditions and human physiology.

Albeit situated on one of the most exposed plateaux of the Cairngorms it is inaccessible only during the worst winter storms and is relatively safe since a downhill walk in any direction leads to a road. There is a winding land-rover track that runs to the summit and a walkers' path that starts from the car park at the top of Chapel Brae in Braemar.

The purchase of the hut was made possible by "Action for Disaster", a national fund for Scotland, instigated as a means of assistance in times of emergencies, crises or disasters. The situation, by courtesy of the Laird of Invercauld Estate, is convenient due to the proximity to Aberdeen and the ready source of power and GPO communications already serving the Goring hut.

The type of structure required was not initially clear but collaboration with the British Antarctic Survey, whose medical and physiological research policies are directed from Aberdeen University, concluded that a pre-fabricated building similar to one already in use in Antarctica would be most suitable. The building panels are four inches thick consisting of two sheets of plywood interfilled with polystyrene insulation. The building consists of a laboratory and a living room with bunk beds and cooker on either side of the entrance lobby and there is a small cubicle housing a portable lavatory. Cooking and lighting is by gas from portable propane cylinders kept at the rear of the hut.

The foundations upon which the laboratory is built consist of railway sleepers bolted together with additional weight provided by boulders on a steel mesh. The building sections were hoisted by helicopter from Braemar to Morrone Summit and the construction effort was through the manpower of the Grampian Police Mountain Rescue team, Braemar Mountain Rescue, British Antarctic Survey personnel and students and post graduates of Aberdeen University. The main structure was built within two days but full completion continued over several weekends. During the hut's first winter in 1977 there were a number of teething troubles: the water supply from the roof reservoir was contaminated by roofing felt, there were burst pipes, water and spindrift penetration and inadequate ventilation resulting in fungal growth. The foundations were firm and the hut stood up to wind and storm although a carpet has been lost when taken outside to dry.

Research work utilising the hut has so far been directed towards the problems associated with treating hypothermia in the field. In particular, the evaluation of apparatus to warm inspired air on the premise that the respiratory tract is a pathway for heat exchange from the environment to the internal organs (Auld, Light and Norman, 1979). Another project has been measurement of the climate in the region of the laboratory since all biological work in cold climates must relate to the climate in which the measurements are made. Furthermore, mountain rescue teams have a requirement at their base for instantaneous weather reports in the hills to facilitate planning and co-ordination of rescue operations as conditions in the hills can vary greatly from those in the valleys. An automatic weather station at the laboratory, that was funded by both Tenovus (Scotland) and Action for Disaster transmits the recordings by land line to the mountain rescue base in Braemar, the Police Station and to a shop window for public viewing. The data will be displayed on a digital read-out that is being completed by Robert Gordon's Institute of Technology. Another automatic weather station exists at the summit of Cairngorm, whence the recordings are radio relayed to Heriot Watt University in Edinburgh.

With increasing numbers of people pursuing leisure activities in the hills and the ever increasing work forces being exposed to the cold environment offshore, detailed study of the effects of cold on man is now of increasing importance. The interrelated problems of exhaustion, exposure and hypothermia justify further investigation as to causation, treatment and prevention. The British Antarctic Survey, Army Personnel Research Establishment and the Oil Industry in conjunction with Aberdeen University are taking an active interest in the development of what is likely to turn out to be a major study. The Morrone laboratory is intended to facilitate physiological measurements in an exposed part of the Cairngorms.

H.R.H. The Duke of Edinburgh visited the laboratory on July 1st 1978 and a plaque was unveiled to commemorate his visit. Subsequently, the building has been formally presented to the University of Aberdeen through the generosity of Action for Disaster.

Light, I.M., Auld, C.D. and Norman, J.N. (1978). Respiratory heat exchange in hypothermia. *Scottish Medical Journal*, 23, 198.

Auld, C.D., Light, I.M. and Norman, J.N. (1979). Accidental hypothermia and rewarming in dogs. *Clinical Science*, 56, 601 – 606.

