

Dal's Ear To The Ground

By SUE HERMAN

A building, containing equipment so sensitive that it records at any distance most of the 18,000 earthquakes occurring each year, is located at the east end of Studley.

The records of the Dominion Observatory Seismograph, one of the twelve in Canada, set up here in 1916, show not only earthquakes, but nearby blasts, and even the vibrations caused by large waves beating against the shore. The trace left by a quake, however, is one of considerable duration, while blasts including nuclear blasts, just cause one "blip" to appear, as one tremor only is conducted through the earth. Earthquakes result from the relief of stress in the earth's crust, an action which causes sometimes violent tremors. The visible effects of near-surface quakes may be seen in surface "faults" or "cracks."

In the seismograph building, a cement block, extending as far down as bedrock, is shaken as tremors reach it. Four extremely sensitive seismometers, one for measuring components of tremors traveling north and south, one for those going east and west, and two which measure vertical components, are placed on top of this block. The mechanical action of the vibrating seismometer is converted to electrical energy in order to amplify the seismometer reaction. This electrical energy causes a mirror to move in co-ordination with the tremor.

Paper Chromatography Records Tremors

The photographic paper, on which the traces are made, is rolled on one of the two large drums which revolve at certain fixed speeds. There is a small slit in the back of the drum casing which allows a narrow beam of light, reflected from the previously mentioned mirror to penetrate onto the paper. As the room is kept in darkness, the light exposes the paper, as it would a film, leaving a black trace after the paper is developed. Providing the position of the mirror does not change, the trace is straight. As

soon as a tremor arrives, causing a movement of the mirror, the beam of reflected light is deflected, and a corresponding deformity shows upon the trace.

Equipment Amazingly Sensitive

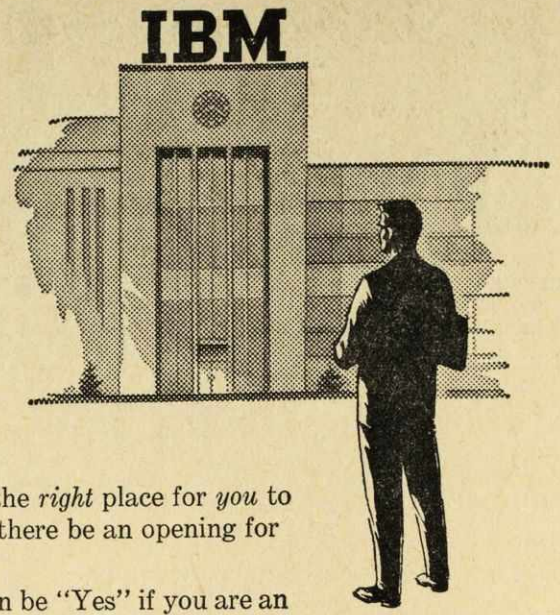
The equipment is so sensitive that small currents of air or minor changes in room temperature bring on a reaction. Quakes occurring in Alaska not too long ago resulted in such a violent tremor at Dalhousie that the mirror became stuck at an extreme position.

Time signals appearing on the records are relayed in from a spot just inside the second door (there are three doors before the actual seismograph is reached). Here there are two clock, one which appears to have no other purpose than to turn on a radio so that the 10 o'clock time signal will be registered. The other kept on Greenwich time (four hours ahead of us) at all stations, clicks noticeably in marking one minute intervals on the records.

For such delicate, intricate equipment to be kept in such confined quarters is astounding. While one waits in almost complete darkness

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Your entrance into the world of work



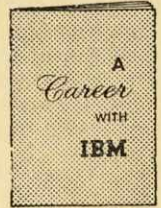
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