magnetron gauge

Canada has a special interest in the magnetron gauge because it is based on an instrument developed by the Electron Physics Section of the Radio and Electrical Engineering Division of the National Research Council of Canada. The gauge is one of a family of instruments developed by the Section in the last decade under Dr. P. A. Redhead for low pressure production and measurement through the use of ultrahigh vacuum techniques.

The magnetron gauge is a sort of satellite of SIDE – a tiny experiment the size of a kitchen match box. It is measuring the density of the lunar atmosphere (vacuum level), and should help to determine more fully the effect of the solar wind on the lunar atmosphere.

Present theories hold that the solar wind tends to sweep away all light gases, leaving an atmosphere composed almost entirely of very heavy inert gases such as krypton and xenon. These are believed to originate from radioactive decay of material on the Moon's surface. If sufficient measurements can be obtained, it may be possible to place an upper limit on the strength of the solar wind. Space scientists hope this will serve to some degree to verify existing theories currently in conflict to some extent.

The magnetron gauge placed on the Moon by the Apollo 12 crew was built by Norton Research Corporation, Cambridge, Mass., under direction of Frank L. Torney. Mr. Torney also built another version of the gauge which was aboard the U.S. Explorer 17 satellite.



Prototype of magnetron gauge developed by NRC's Radio and Electrical Engineering Division.

Prototype de la jauge magnétronique du Conseil national de recherches du Canada.