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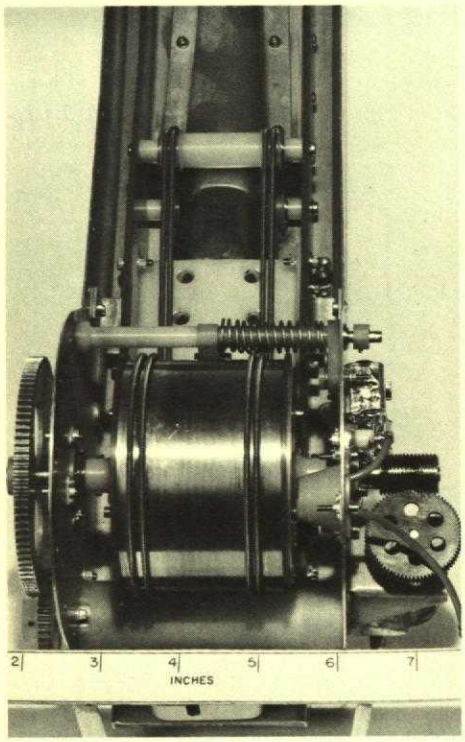

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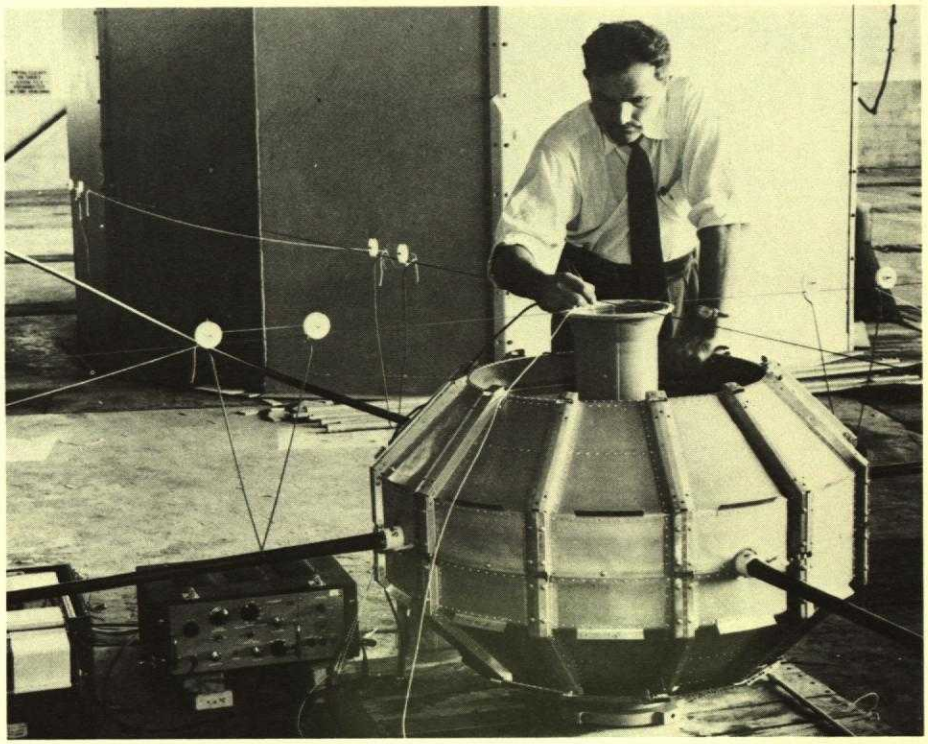


Alouette I, launched in 1962, had two antennas. Each consisted of two poles extended at right angles to one another. Each pole was stored as a tape on a spool (left) during launching. In space, as the tapes unwound, their edges curled tightly together to form semi-rigid tubes. The antennas, shown in tests (right), measured 46 and 23 metres from tip to tip. Later Alouette and ISIS satellites had 73-metre antennas.

noise, listened to low-frequency radio noise and counted the charged particles surrounding it.

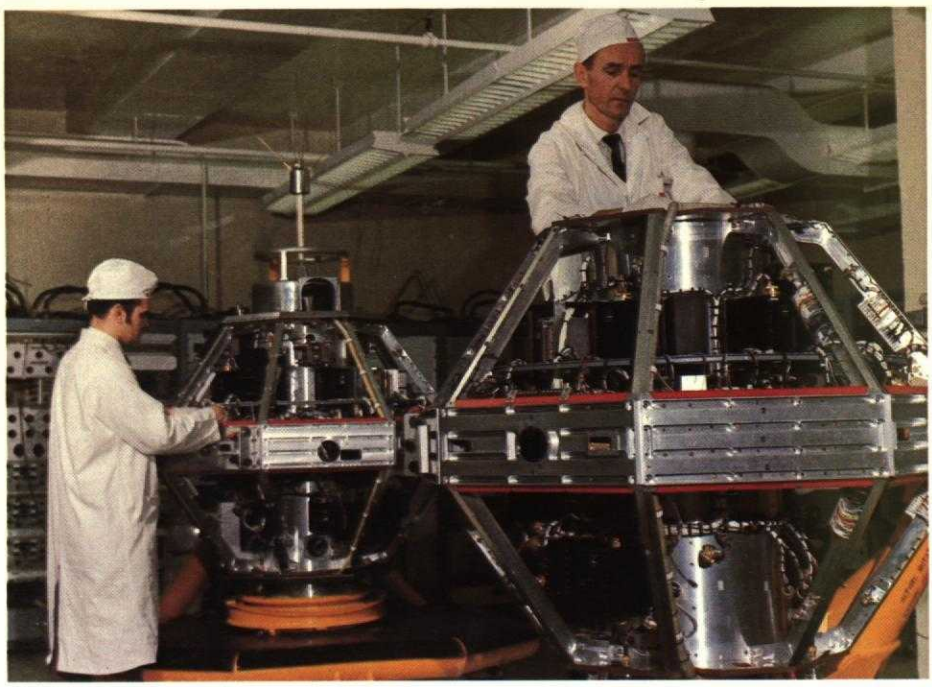
At a time when most satellites had a life of only a few months, Alouette I was designed for an expected life span of about one year; it lasted ten. Its measurements of ionospheric behaviour almost spanned an 11-year cycle of solar activity.

ISIS

Isis, the Egyptian Queen of Heavens, divided the earth from the heavens, showed the stars their paths and ordered the course of the sun and the moon.

The success of Alouette I led to an agreement between Canada and the United States to build and launch a series of International Satellites for Ionospheric Studies (ISIS). The United States agreed to launch up to four satellites from the NASA Western Test Range; Canada designed, developed and constructed the satellites. The main Canadian subcontractors were RCA Limited of Montreal (now Spar Technology Limited) for electronics and SPAR Aerospace Products Limited of Toronto for the structure.

The primary objective of the ISIS program was to make comprehensive measurements over a range of heights and latitudes in the ionosphere. Alouette II, originally built as a



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ISIS II (left) was the most advanced satellite in the Canada-United States ionosphere-probing program. Its Scanning Auroral Photometer took this picture of the aurora borealis as seen from above the polar cap. When the picture, which spans all 24 time zones, was taken, it was midnight at the bulge. The green emissions are from oxygen; the blue, from ionized nitrogen.