

HIGH PROBING

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WHILE Indians harpooned white whales and icebergs floated in Hudson Bay, scientists and missile-men at nearby Churchill Research Range observed through the "eyes" of rockets changes in the earth's upper atmosphere during the sun's eclipse on 20 July.

Operation Probe High, which involved a series of eight launchings in two hours, was by far the most ambitious and technically complex program ever attempted at the Churchill range. At the eclipse's peak three rockets were fired 110 miles high within a three-minute period, and were simultaneously tracked by range telemetry and radar antennas. Carrying a payload into the ionosphere at the height of totality was a Canadian-designed and built Black Brant II A rocket. Six American Nike-Apaches and one Aerobee were used as boosters for the other probes. Primary objective of Operation Probe High was to study the effects of a solar eclipse on electron density, electron temperature and ionospheric absorption characteristics in the ultraviolet and x-ray regions of the spectrum. Each test vehicle was instrumented to make measurements during its six to eight minute flight over Hudson Bay.

Two of the most interested spectators on the specially-constructed observation platform 1000 ft. away from the launching pads were Emil Buss and Angus Maclver, both of whom have trapped in the area for over 30 years. In the words of Col. J. F. Flicek, USAF commander of the range, "they are truly explorers of another generation." Witnessing the event with them were the first group of newsmen to visit Fort Churchill since the research range, virtually destroyed by fire in 1961, resumed operation last November.

Initially constructed for rocket experiments during the International Geophysical Year, the range is now operated by the USAF's Office of Aerospace Research for a wide variety of American and Canadian users, including universities, governmental and private agencies. During the next 12 months about 70 high altitude rockets, including Black Brants, Javelins, Aerobees and Nike-Cajuns, will carry instruments from here into the upper atmosphere for research purposes.

Supplying "housekeeping facilities" for those working at the range (two of whom are RCAF officers seconded to the USAF) is Fort Churchill, located 12 miles from the launching site. Currently commanded by Canadian Army Col. A. S. Galloway, Fort Churchill is the most unusual military station in Canada — having permanently established army, navy, airforce, DRB and DOT units within its boundaries.

Claiming the doubtful honour of being the coldest inhabited spot in Canada (because of the windchill factor), Fort Churchill is a natural location for the Canadian Armed Forces' Arctic warfare experimental and training establishment. Because it is beneath the path of greatest intensity of the aurora borealis (northern lights), Churchill is also ideally situated for Defence Research Northern Laboratory's studies into this phenomenon.

Three and a half miles from the military base, at the mouth of the Churchill River, is Port Churchill, whose white population fluctuates from 500 in winter to 3,500 at the height of the two-month summer shipping season. Nearby are located both an Eskimo and an Indian village, built by the federal government, and inhabited by natives who no longer can support themselves in their natural habitat.

Thus within a few square miles live people of great divergency of interests. Some still depend on the sea and the permafrost for the bare necessities of life. Others look to the heavens, hoping to explain the mysteries of space by the latest in aerospace research techniques.