Two meteor field stations operated in northern Alberta are known as the Meanook and Newbrook Meteor Observatories. Each observatory is equipped with a Super-Schmidt meteor camera for the photography of meteor trails. The results are used to study both the upper atmosphere through which the meteor passes and the meteors themselves. Data on the orbits of the particles in the solar system prior to their collision with the earth are obtained. About 20 meteor spectrographs are also in use to obtain photographic spectra of meteors from which data on the composition of the meteor particles and the method in which they react with the atmosphere are derived.

The Dominion Observatory is interested in the related subject of meteorites. In this field, the astronomical and geophysical divisions have co-operated in an intensive study of ancient Canadian craters which appear to be originated by the impact of huge meteorites. This program followed the identification in 1952 of the New Quebec (Chubb) Crater as an old meteorite crater. About a dozen such craters are now recognized in Canada, ranging from one to 40 miles in diameter. Some are at least several hundred million years old. The most important support for a meteoritic origin has come from diamond drilling operations in which core is recovered from beneath the crater. This may then be studied for alterations caused by the great pressure and heat created at the moment of impact. Results of drilling operations have supported a meteoritic origin for the following craters: Brent and Holleford, Ont.; Deep Bay, Sask.; and East and West Clearwater Lakes, Que. Further studies of these and other features are planned. With the current progress in studies of the moon's surface, this study of terrestrial meteorite craters has assumed increasing importance.

The Dominion Astrophysical Observatory

The Dominion Astrophysical Observatory at Victoria, B.C., is concerned with observations of the quantity and nature of the light radiations received from the stars and other celestial bodies. The interpretation of these observations assists in the understanding of the structure, both of the stars themselves and of the Milky Way system which they form and of which the sun and its planets are a part. From the earth, all the stars appear very faint, and it is necessary to collect as much of their light as possible in order to make useful observations.

The principal telescope of the Observatory is the 72-inch reflecting telescope to which is attached a spectrograph which analyses the starlight into its constituent colours and photographs the pattern, or *spectrum*, thus produced. In 1962 a 48-inch reflector was brought into use, together with an associated spectrograph which uses the starlight it receives much more efficiently, thus compensating to some extent for the smaller size of its telescope. The 48-inch telescope is also used for photoelectric *photometry*—the precise measurement of the apparent brightnesses and colours of the stars with the aid of a photoelectric cell. In 1963 a 16-inch telescope, which will in future be used for photometry, was presented to the Observatory.

Analysis of starlight with a spectrograph permits detailed study of many properties of the stars which would otherwise remain unknown. An example is the speed of a star along the line of sight. If the speeds of large numbers of stars, whose distances are known, are determined, the structure and dynamics of the Milky Way system can be studied. Distances of stars can be estimated from their spectra, provided the results of accurate photometry are available for the same stars. A major program of this kind, representing some twenty years of observational effort, has been completed recently. In accordance with normal scientific practice, the results of this and other investigations are published and sent to astronomers throughout the world.

The study of a star's spectrum also leads to a knowledge of the chemical composition of the star. Each chemical element removes light of certain definite and well-known colours from the total light of a star, leaving a dark line across the spectrum. The lines of a given element can appear in a spectrum only if that element is present in the star. Other factors, however, determine which of the elements actually present will affect the