



EDITORIAL

The Hogg Two-Star Sextant

A World Inventory of Scientific Instruments is being compiled, and the Canadian Society for the Study of the History of Science and Philosophy of Science is asking us for a list of whatever we have in this category.

One of the instruments which we might list (though it isn't very old) is a unique bubble sextant developed here by the late Dr. Frank S. Hogg in the early years of World War II which was tested by the Royal Air Force, the Royal Canadian Air Force and the Royal Canadian Navy but never adopted for general use. Known as the Hogg two-star sextant, about four of the instruments were made in the shop by Gerry Longworth. Three (if we remember correctly) were accessioned by the Services for testing and one was retained here. We heard only indirectly about the results of the tests but we understood that the decision against the adoption was on the basis of the difficulty of making the observations relative to the simpler one-star sextant and its limitation to latitudes higher than about 10° North.

Checking position by "astro fixes" was a very important navigation technique during the war, even after the development of radar, Loran and other electromagnetic aids. The best air navigators maintained their astro skills by constant practice, but the weaker ones were often discouraged by the complex and time-consuming procedure of identifying stars, obtaining two or three altitude determinations, consulting two sets of tables, performing arithmetic, and finally doing the required chart work for a fix. It was a very good navigator who could go through the whole procedure in less than ten minutes. The Hogg sextant had the potential to eliminate practically all the tabular work, arithmetic and chart work and to reduce the observation time by a half with virtually no chance of error. It was possible to obtain the latitude and longitude in three minutes or less.

Very briefly Dr. Hogg's ingenious sextant worked as follows: A longitude dial graduated in degrees rotated about the optical axis of a small telescope. The dial carried a set of prisms and mirrors by which the light of both Polaris and Kochab were deviated by the north polar distances of the stars. The telescope was pivoted on a horizontal axis which carried a latitude dial. The bubble was more or less standard. To use the sextant the navigator would pre-set the dials for his approximate position and the time of night, point to Polaris and then adjust both dials until the two star images coincided and were in the centre of the bubble. The latitude dial then gave the correct latitude, and the longitude was obtained by a simple subtraction involving the reading on the longitude dial and the Greenwich Hour Angle of Aris - the latter obtainable from one simple entry into a table or even carried on the wrist by a kind of sidereal watch.

Dr. Hogg and Gerzy were very adept with the two-star sextant on the ground. I had one opportunity to use it in the air on a training flight somewhere near Lake Scugog. The air was extremely bumpy and I admit it was difficult to manipulate two dials, level the sextant, maintain my footing and keep those two images together in the bubble; nevertheless I was able to get positions within about 20 miles from single sights - which was not bad under the circumstances.

After the war we heard no more of the three sextants which went out for tests until, quite by accident, in 1968 I spotted one in a sporting goods shop near Orillia. The manager told me that two of them had showed up in a shipment of assorted war surplus material that he bought by the pound. When I told Mrs. Hogg she got in touch with the shop and managed to buy them.

Somewhere some gadget-minded guy is probably racking his brains to know what to do with that little spy-glass with a couple of funny dials and a carpenter's level that he picked up in a surplus store.

J. F. H.

OBSERVING

Dr. Racine and Bill Harris had a good observing run at Las Campanas after the recent readjustments. Dr. Coutts has just completed a four-week run and is due back this week. Then Bill Harris will take over again.

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COMINGS AND GOINGS

A number went to the July 10 eclipse - with various degrees of success. Dr. and Mrs. MacRae motored to P.E.I. where they set up on the ancestral MacRae farm and had almost cloudless conditions. Similarly successful was Mrs. Hogg who motored (by way of Massachusetts, with five members of her family) to Grande Anse on the Bay of Chaleur in N. B. Dr. Percy is believed to have had good sky somewhere in the Maritimes. On the other hand Drs. Racine and Garrison, who were with about 50 other R.A.S.C. members at Bonaventure, P.Q. were clouded out, as also was Bill Harris at Cap Chat.

Dr. Percy and family have left for Cambridge, England, where he will spend a sabbatical year at the Observatory and Institute.

Dr. MacRae spent two days last week in Pasadena at a meeting of the Universities' Space Research Association. On June 28-29 he had attended a meeting of the N.R.C. Advisory Committee on Physics at the C.A.P. meeting in Edmonton, along with Drs. Wright, Odgers and Wehlau to discuss large Canadian telescope proposals.

Dr. van den Bergh is holidaying in Spain.

SEMINARS

JULY none

AUGUST

Dr. Fernie, Chairman of the Local Organizing Committee, supplies the following information concerning:

I.A.U. Colloquium No. 21 ("Variable Stars in Globular Clusters and Related Systems", in honour of the life-long work of Dr. Helen Sawyer Hogg).

Planning is on schedule for the Colloquium on August 29-31. The final program will be ready in about a week and will consist of six invited review papers and about 30 contributed papers. The review papers will be given by Drs. H. S. Hogg (General review of variables in globular clusters), S. van Agt (General review of variables in dwarf spheroidal galaxies), L. Rosino (Observational aspects of RR Lyraes in clusters), M. M. Feast (Slow variables in clusters), N. H. Baker (Theoretical aspects of pulsation) and P. Demarque (Evolutionary considerations).

It is expected that there will be in addition to those mentioned above and local participants, about 40 or 50 registered visiting participants, including Belserene, Buscombe, Castellani, Cooper, Art Cox, Davis, Demers, Wickens, Lloyd Evans, Geyer, Graham, Hodge, Jones, Joshi, Kraft, Lacoarret, Ledoux, Margaret Mayall, Mengel, Menzies, Norris, Ounas, Popova, Potts, Renzini, Sackmann, Schneider, Smeyers, Sweigart, Swope, Terzan, van Albada, Veltmann, Wallerstein, Amelia Wehlau, Wesslink.

Apart from the scientific meetings (which will be held in the McLennan Laboratories), there will be a wine-&-cheese party in the New School of Library Science on the Monday evening before the meetings begin, an Open House at the Observatory on the Tuesday evening, and a dinner at the York Club on the Wednesday evening. An all-day excursion to Niagara Falls is being arranged for visitors who stay on through the Friday. While these events are intended primarily for registered participants, the scientific meetings will be open to all. I would appreciate having the names of anyone who intends registering so we can estimate the numbers of people likely to attend the various functions. The registration fee is \$8.00 plus \$7.00 per person for the dinner.

J. D. F.

PAPERS SUBMITTED IN JULY

- S. van den Bergh: The Evolution of Galaxies - A Heretical View ;
- An Unusual Nebula Associated with HD 87634.
- Seaquist, E.: Circular Polarization of Selected Compact Sources at 3240 MHz.
- Walborn, N.: Some Characteristics of the Eta Carinae Complex.

LETTER TO THE EDITOR

Sir,

I was much interested in your account of Newfoundland and its University. Your experience there was similar to my own in finding the people friendly, humorous and intriguingly different from other parts of Canada. Long live the Newfies, their jokes and their screech. It was nice to see the pronunciation of the name Newfoundland set out in such a learned publication. As a Maritimer from way back I have often found the various other versions in Upper Canada and the Old Country mildly objectionable.

C. S. Beals.

MISCELLANEOUS

Bereaved

Our sympathy is extended again to Frank Hawker whose father died on June 24th. Two weeks later his wife, Joan underwent serious surgery, but we are glad to report that she is recovering well.

Born

To Dr. and Mrs. Kronberg on June 27 a son, Martin Thomas,
M = 3.0 kg.

Ph.D. Thesis

Dave DuPuy successfully defended his thesis on "An Observational Study of RV Tauri Stars" on June 28.

Generals

Serge Pineault was successful in his general Ph.D. examination on June 30, and Bob Chambers on July 21.

Appointed

Dr. Hogg has been appointed to the Editorial Board of the new Journal of the A.A.V.S.O. which will commence publication in the fall.

Gold Medalist

Mark McCutcheon has earned the R.A.S.C. gold medal for being first in first class in the fourth-year astronomy program.

Visitor

Dr. Amelia Wehlau spent the day here on July 20 conferring with Dr. Hogg about their work.