



## CHRISTMAS GREETINGS

### From the Students

Once again it is Christmas at DDO, with snow on the ground and clouds in the sky. Although the Christmas weather seems to go on unchanging year-after-year, the friends with whom we celebrate this season seem to change all too quickly: Our friends from Christmases past are now scattered throughout the world. It is with the hope that we may see them soon again that we send to each one our best wishes for a Merry Christmas and a Happy New Year.

*Tom Barnes for GASA*


### From the Staff

In many ways the mid-winter holiday season has a special significance to us astronomers. This year it also marks the end of a fabulous decade for our science.

We can all take pride in astronomy's remarkable achievements in the recent past, and we look forward to new and exciting developments. The Observatory wishes one and all a Merry Decade!

MR

### From DDD



"The Doings" now goes to about as many Alumni as to staff and students here. To those in particular, whom we cannot greet personally, we send warmest Christmas and New Year greetings.

*J.T. and J.F.H.*

## OBSERVING

### The Infra Red Photometer Assembly

Dr. Roeder has given the following description of the new assembly which is now ready to be mounted on the 74-inch telescope.

The equipment consists of an offset guider, photometer, detector dewar, and electronics.

The offset guider, based on a sketch by Bob Hawkins, is of the fixed-mirror type. It presents an 8-inch square mirror with a 2 1/4-inch centre hole to the beam, and is designed to hold up to 200 lbs. of equipment with essentially zero flexure over the temperature range +80 to -20°F.

The photometer, based on a design by Harold Johnson, has a built-in "standard source", and uses a two-level mirror to chop between object and sky at 20 hz. We have incorporated a device (designed after talking with Dr. Racine) to enable the object to be sensed alternately in one beam and then the other without nodding the telescope in declination.

The detector is a doped Ge crystal cooled to 4.2°K by liquid helium, operated in a photoconductive mode behind a silicon window. It was built by Infrared Labs. Inc. of Tucson (Frank Low, Incorporated) and operates at 1.5 μ. The detector dewar is easily demounted for filling.

Mounted on the dewar is a low-noise preamplifier designed and built in Tucson. This feeds the signal to a PAR model 121 lock-in amplifier whose output is the r.m.s. value of the A-C signal at the chopping frequency.

The photometer and guider were fabricated in Don Mills by the Canadian Research Institute, a firm which made many of the exhibits in the Ontario Science Centre, among other things. The people who have been working with us profess to have a great desire to build a telescope!

## COMINGS AND GOINGS

### Départ

Le docteur Agop Terzan, après deux mois ici comme collaborateur avec Mme Hogg, est revenu Decembre 11 à Lyons. Il dit qu'il est très content de son séjour, et il voudrait bien revenir pour une visite plus longue dans l'avenir.

Dr. Garrison away

Dr. Garrison left about December 5 for a variety of purposes. First he was to give a colloquium at Ohio State on "Spectra of Peculiar B-Stars". Then to the A.A.S. meeting in New York, and then (Dec. 13 to Jan. 5) to Mount Wilson Observatory for one week's observing of the Orion Belt region with the 60-inch, one week classifying spectra of long-period variables and one week of vacation. After a brief stop in Toronto he will then be at Cerro Tololo to observe southern OB stars with the 36-inch from Jan. 7-27.

A.A.S. Meeting

Attending the New York meeting Dec. 9-11 were Drs. Anand, Fernie, Garrison, Percy and van den Bergh. Dr. Garrison presented a paper on "Some Characteristics of the Peculiar B-stars with Colour Spectrum Discrepancies", Dr. Percy on "Short Period Light Variations in Stars in  $\eta$  and  $\chi$  Persei", and Dr. van den Bergh on "The Extra-Galactic Distance Scale".

Dr. MacRae

Dr. and Mrs. MacRae were in Ottawa on Dec. 2 as guests at the state dinner tendered in honour of the Apollo 11 astronauts. Dr. MacRae was also in Washington Dec. 7-10 for meetings of the Universities Organizing Committee for Space Research.

At A.R.O.

Drs. Kronberg and Seaquist are at the Algonquin Radio Observatory Dec. 10-15.

SEMINARS

DECEMBER

December seminars were as announced.

JANUARY

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|-------------------------|--|
| Tues. Jan. 6<br>D.D.O.  | Dr. Kronberg - Topic to be announced. Also Apollo 11 film.   |
| Tues. Jan. 13<br>D.D.O. | Chris Coutts. "Methods of Determining Helium Abundances from Observations of RR Lyrae Stars in Globular Clusters."<br><br>Jacques Vallée "Solar Radio Centres and Recurrent Geomagnetic Storms". |
| Tues. Jan. 20<br>D.D.O. | Greg Fahlman, "Structure and Stability of Rapidly Rotating Super-Massive Stars".   |

Thurs. Jan. 22  
Room 202  
Joint-S.G.S.

Dr. Phillip Morrison, M.I.T. "Theory of  
Supernovae".

Tues. Jan. 27  
D.D.O.

Dr. Racine. Topic to be announced.

Fri. Jan. 30  
Room 202

Dr. David Hogg. Topic to be announced.

#### SEMINARS

(Room 202 McLennan 4.10)

Wed. Jan. 6

Ted Bednarek, "Spectra of Comets and their  
Interpretation".

Wed. Jan. 14

Bob Hawkins, "Wolf-Rayet Stars".

Wed. Jan. 21

Jack Winzer, "Interplanetary Scintillation".

Wed. Jan. 28

Tom Barnes, "Infrared Properties of Galactic Nuclei".

#### MISCELLANEOUS

##### Vandals

The local (one presumes) bird-brains have been at it again. The gnomon of the sun-dial has been bent once more, and the beautiful new flagpole, erected only recently, has been bent by some persons heaving on the rope. Dr. MacRae has asked the staff to be alert for persons roaming the grounds after hours and has asked us to obtain their names or car registrations.

##### Gate-House

The persistent vandalism has hastened action on the long-standing proposal to build a combined gate-house and caretaker's residence on Donalds Drive\* near Hillview. The Superintendent's Department has called for tenders.

\* Dr. Chant in leaving a bequest to build a new Observatory road asked that it be called Donalds Drive in honour of Jessie Donalds Dunlap. Now that it is to be graced with a house, perhaps we should start calling it that.

##### Census 1969

Ursula Dewsbury has produced a new version of the census. There are now at the Observatory and in the Department 17 academics, 20 supports and 31 students. Counting these and their spouses and descendents, there is a total family of nearly 200.

### Job

A position of Staff Astronomer will become available at the Planetarium in Winnipeg on April 1, 1970. Starting salary for a person with a Master's degree is said to be \$10,000. Anyone interested should write to Mr. Dennis H. Gallagher, Planetarium Director, 147 James Avenue, Winnipeg 2.

### Blue Cross

No doubt many members of the staff have already enrolled in Blue Cross Extended Health Care which covers such extras as private hospital rooms, 80 per cent of drug costs, nursing care, ambulances, etc. The levy is reasonable and those who passed up the original invitation might be well advised to reconsider before the next group opening date on March 1, 1970.

### March Event

Dr. Hyron Spinrad will visit the Observatory March 15-22 and will give a few informal talks on "Metal Abundance in Nearby and Distant Stars".

### Travel to I.A.U.

The AAS will probably charter a flight from New York to London departing Aug. 3 and returning Aug. 30 at an estimated cost of about \$225 per seat.

For comparison, as of now Air Canada's 21-day excursion fare in August is \$409 Toronto-London, but there is a possibility of lower fares for longer stays before next summer.

Wardair last summer quoted \$240 Toronto-London for a minimum of 40 persons on a three-week charter excursion, but interest expressed to J.F.H. has been limited to two or three persons.

Perhaps we should conclude that the AAS charter will be the cheapest available proposal for those satisfied with the 27-day interval. The U. of T. charter flights are usually for a considerably longer period.

### Alumnus

Dave (Ph.D. 1967) and Heather Crampton and daughter Lisa of Victoria left on Dec. 12 for South Africa where Dave will observe B-stars at Radcliffe for a few months. En route they will visit India and other places in the Orient.