



EDITORIAL

A Letter from Inge

When Inge Sackmann writes a letter, as she did to me this month, it runs to 13 pages and is too interesting not to share with others. So I hope she will not mind if I edit and abbreviate her letter for DDD readers.

Inge writes from the Max Planck Institute in Munich about both Göttingen and the Institute.

"As you know, I arrived at the Universitäts-Sternwarte of the University of Göttingen at the beginning of December. I was very charmingly received, first by several graduate students lined up at the railroad station and holding astronomical photographs for recognition, then at the Observatory by Prof. Kippenhahn and 20 astronomy students. Soon we were marching through the buildings where one feels the link with the great astronomers and mathematicians of the past who worked here. Gauss actually lived in a wing of the Observatory for the greater part of his life. In a casual room which is never locked one may examine hundreds of volumes of his manuscripts, his cap and his famous measuring instruments. Elsewhere there are memorials of Emden and Karl Schwarzschild. There are so many precious books here lying around so casually that I would like to start a campaign to get them behind glass for their protection. Perhaps the Amateur Gauss Society of Göttingen could be persuaded to find the funds. Only recently the City Council has been persuaded by a concerned visitor to begin to clean up the grave of Karl Schwarzschild which was in a shameful state of neglect.

"At the Observatory there are two main lines of research. One group under Prof. Kippenhahn is concerned with stellar interiors, the other under Prof. Schlüter (until this fall), with the sun. The former group has about 12 altogether, with about half of them working on rotating stars. Prof. Kippenhahn has an affiliation with the Max Planck Institut in Munich and has another group working with him there, including guest investigators. I couldn't be with a more stimulating group.

"Last March at a five-day Stellar Interiors Course in the French Alps I met Dr. Reeves (formerly of Montreal) and Michel Patenaude (one of our graduate students of a few years back). The latter lives in Switzerland, is married to a Swiss, has a baby son and studies under Prof. Bolvier in Geneva.

"Last January I gave my first invited colloquium - at the Institute. I spoke scientific German and it went OK.

"The computing facilities are so much better here at the Institute than at Gottingen that my stay is being prolonged. The newly-installed IBM 360/91 is Europe's most powerful - about ten times as fast as the IBM 7094 at Toronto. On express jobs we use direct remote terminal entries, and on a good day I can get up to ten lengthy stellar interiors computed in successive runs.

"During the summer months about ten astrophysicists from the U.S. were working here for periods ranging from months to years; among them were Dr. Norman Baker, Dr. Temesvary, Dr. Solinger, Dr. Hubner and Dr. Gerald Schubert.

"Thanks to the generosity of Prof. Kippenhahn, Dr. Thomas and Dr. Hofmeister-Meyer, I have been let in on a stellar interiors program that took them, with the help of others, six years to construct, and which is possibly the most complete and general such program in the world. It is a huge program consisting of 32 complex subroutines. What can be done with this program is so far-reaching that I will probably use it for decades. I worked so hard in getting an understanding of the program that I made myself ill until I learned to work at a more moderate speed (and to include some mountain climbing).

"As to research, I am working on a particular program on rotating stars with Prof. Kippenhahn, and I have just finished a project of my own having to do with the effect of uniform rotation all along the main sequence (as contrasted with my Ph.D. work on the upper MS only) to see why the difference of rotation occurs as between the upper and lower MS, the effect of critical rotation being about three times as large for the lower. I think I have an explanation of this effect as well as of the other interesting rotation - caused differences in the interior structure along the MS. But the real excitement lies in non-rigid rather than rigid rotation. Prof. Kippenhahn and Dr. Thomas have developed a beginning for this method, and I hope to generalize this method so that it can be used widely across the HR diagram. It will take half a year, but once running, the program should be the best yet for handling non-uniform types of rotation in stars from which I would expect exciting results. Then I can apply rotation to the atmospheres in close conjunction with the results on interiors."

Inge goes on to say that she hopes to visit Dr. Schmidt-Kaler and the Tony Moffats in Bonn and to accept invitations to visit London, Cambridge, Paris and Nice. Next year, perhaps late, she hopes to return, for despite all the excitement, she misses Canada.

It was a nice letter for this elderly party (to quote Somerset Maugham) to receive from a charming and enthusiastic young lady, and I hope our readers will have enjoyed the summary.

J.F.H.

### OBSERVING

Observing here has been relatively poor recently, what with bad weather, a slow batch of spectrograph plates and deterioration of the coating of the primary mirror of the 74-inch. However, the renovated vacuum chamber is nearly ready to use, a new shipment of plates is due and the weather can only change for the better.

The 74-inch dome is receiving a new coat of titanium white paint.

### COMINGS AND GOINGS

#### Observing Sessions

Dr. Kronberg spent two months as Temporary Research Fellow at Jodrell Bank. In collaboration with Dr. Conway he carried out a successful  $3\frac{1}{2}$  week observing session, using the Mark I and Mark II radio telescopes, the purpose being to conduct the first extensive polarization survey of extra-galactic radio sources at 408 MHz.

Hugh Ross, accompanied for a few days by Dr. Seaquist, used the 300-foot radio telescope at Green Bank for nearly two weeks in September to observe curved spectrum radio sources, obtaining about 1000 scans of 150 sources at 750 and 1400 MHz.

Dr. van den Bergh had six nights on Mount Palomar, Sept. 12-18, five on the 48-inch continuing his 10-year program of photography of the local group to detect slow variations, and one night on the 200-inch.

Dr. Racine was at Cerro Tololo Sept. 8-23 continuing the DDO two-colour survey of the southern milky way.

Dr. Heard was in Victoria Sept. 13-19 for an observing session with the 73-inch telescope in an effort to obtain additional spectrograms for a program to establish new faint-radial velocity standard stars.

Dr. Garrison had six observing nights during September on the Mount Wilson 60-inch telescope, using the 85 A/mm Newtonian spectrograph.

### Student Departures

Post-doctoral Fellows Stanley Jeffers and Jan Straka have left, the former to take up his position at York University, the latter to be a Post-doctoral Fellow at the University of Victoria. Peter Martin has left for Cambridge to do a Ph.D. program, and Check-Sen Chai for California to do a Ph.D. program in physics.

### Student Arrivals

The following new graduate students have enrolled in the Department of Astronomy: Peter Chen, Charles Dyer, Gretchen Hagen, David Hanes, Bill Harris, Bob Lake, Barry Madore, Catherine Riordon and Jacques Vallée. Also Ted Bednarek has returned for a Ph.D. program.

### Resignation

Helen Blanchard, assistant secretary in the Department, has resigned to return by a devious route to the Barbados. On Sept. 12, at a going-away coffee party, staff and students made a presentation to Helen and wished her well.

### Arrivée de Marseille

Bienvenue à Mlle Annie Laval qui vient d'arriver ici de l'observatoire de Marseille pour étudier les différentes méthodes de mesure et de calcul des vitesses radiales. Mlle Annie est enfin remontée du "coal-bin" où elle s'est occupée avec la machine Grant, et se trouve maintenant dans la salle à mesurer au deuxième étage. Elle restera ici encore plusieurs semaines avant de continuer ses voyages de découverte au Canada ouest et dans les États Unis.

## SEMINARS

### SEPTEMBER

September seminars were as announced except for cancellation of Sept. 10 and addition of the following:

Tues. 30th, DDO	Iain Baines "Fluctuation of Fluxes at 612 MHz". Jim Clarke "Synchrotron Emission from Jupiter".
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### OCTOBER

Wed. 8th McLennan	Dr. F.D. Drake, Cornell University, "Pulsars"
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Tues, 14th D.D.O.	Dave Goodenough "Six-Colour Photometry of Clusters"
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Tues., 21st D.D.O.	Tom Clarke "Radio Frequency Polarization of the Milky Way".
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Tues., 28th  
D.D.O.

Dr. J.P. Ostriker, Princeton Univ. "Rotating Stars".

Wed., 29th  
McLennan

Dr. J.P. Ostriker, "Pulsars and Cosmic Rays".

### Conference

An International Electronics Conference and Exhibition is to be held on Oct. 6-7 at the Automotive Building of the C.N.E. (registration fee \$2.00). On Oct. 7 at 2:30 p.m. a Radio Astronomy Session will be held with the following talks:

Dr. Lorne Braun: "Recent Developments in Radio Astronomy Techniques"

Dr. J.L. Locke, "Radio Observations of Quasars".  
N.R.C.

Dr. Patrick Palmer, "Discovery of Interstellar Formaldehyde"  
Univ. of Chicago

Dr. Frank Drake, "Pulsars"  
Cornell Univ.

### PAPERS SUBMITTED IN SEPTEMBER

J.A. Gilbert, R.G. Conway "A Relation between the Linear  
and P.P. Kronberg Polarization and Spectral Index of  
Quasars". (Nature)

P.P. Kronberg and R.G. Conway "Measurement of the Integrated Linear  
Polarization of Discrete Radio  
Sources at 610 MHz". (M.N.R.A.S.)

J.D. Fernie "On the Nature of S Vulpeculae" (A.J.)

### ADDRESSES

Dr. P.P. Kronberg "Polarization of Extragalactic Sources  
at 610 MHz", on Aug. 18th at the  
Kapteyn Laboratory, University of  
Groningen, Holland.

R. Racine and S. van den Bergh "Reflection Nebulae and Spiral Arms",  
on Sept. 3rd, at the I.A.U.  
Symposium No. 38 at Basel, Switzerland.

### I.A.U. Committee Papers

The following papers were among those presented at the meeting of the National Committee for the I.A.U. at London, Sept. 5-6.

John R. Percy: "The High Temperature Boundary of the Delta Scuti Instability Region".

E.R. Seaquist: "A Search for Circular Polarization of Compact Radio Sources at 9.26 cm".

J.D. Yen and others: "Long Baseline Interferometer Observations at 408 and 448 MHz".

R.C. Roeder and R.A. Chambers: "Q.S.O. Colours and K-Corrections"

IAU Colloquium on Stellar Rotation

Dr. Clement, Greg Fahlman and Mark Naylor attended the I.A.U. Colloquium on Stellar Rotation at the Ohio State University in Columbus on Sept. 8-9. Among the papers were:

Dr. S.P.S. Anand and I.J. Sackmann "Evolution of Rapidly Rotating B-type Stars".

Mark Naylor: "Structure of Close Binary Stars - I. Polytropes".

M.J. Clement: "Differential Rotation in the Solar Interior"

Gregory Fahlman: "Solar Oblateness and Differentially Rotating Polytropes".

LETTER TO THE EDITOR

Dear Sir:

I always read David Dunlap Doings with interest and profit, especially the editor's contribution!

In return, a very small bit of information which intrigued me and may interest you. In 'Herschel at the Cape' (Diaries and Correspondence of Sir John Herschel, 1834 - 1838, edited by David Evans et al) under the date Monday, December 11, 1837, there is the entry: "...I shewed them the Great Cluster 47 Tucani which in spite of a full Moon was most superb and the Rose coloured central mass distinctly seen by both of them (It was most striking and the definition admirably perfect)."

It goes without saying that I'm now on the lookout for other early references to Population II stars, but to the best of my (limited) knowledge this is the first.

H.C. King, Curator,  
McLaughlin Planetarium.

ALUMNI

David Crampton (Ph.D. 1967) now at the D.A.O. is planning a sojourn of a few months at Radcliffe Observatory to observe southern B-stars. He and Heather and daughter Lisa will leave in December and visit India en route.

Chris Aikman (M.Sc. 1967) is working enthusiastically on several spectrographic programs at the D.A.O. Mary and he rent a seashore property near Sidney, B.C. which has, among other nice features, a stable and paddock for Mary's horse. Mary is taking Education at U. Vic this year.

#### Ruth Northcott Memorial Fund

The R.A.S.C. has set up a fund in memory of Ruth Northcott. The earnings of this fund will be used to initiate or maintain projects in which Miss Northcott was particularly interested. Donations to this fund (which are income-tax exempt) may be sent to Mrs. M. Fidler, Executive Secretary of the R.A.S.C., 252 College St., Toronto 2B, or may be passed to Dr. Hogg or Dr. Heard who are members of the Finance Committee which is administering the fund.

#### PERSONAL AND MISCELLANEOUS

##### Married

Jim Clarke was married on Sept. 8 to Maureen Lennon.

David King (son of Dr. Henry King) was married in August.

##### Free Time on a 100-foot Telescope

Dr. van den Bergh says that Dr. Carlos Varsavsky of the Argentine National Radio Observatory near Buenos Aires has a 100-foot telescope but no receivers as yet. Anyone having his own receiver can have as much time as he needs.

##### Buys House

Dr. and Mrs. Seaquist have bought a house in the Don Mills area, and will take possession on October 1.

##### Attending I.A.U. in 1970?

Dr. MacRae asks that any non-members of the IAU who would like to receive an invitation to the IAU General Assembly in Brighton in 1970 should speak to him about it. Also Dr. Heard would like to hear from any proposing to attend who would be interested in a charter flight Toronto-London return for about \$240 per seat.