



DAVID DUNLAP DOINGS

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APRIL 30, 1974

JUNE INSTITUTE 1974

June 18-21, inclusive

St. George Campus

Wm. Bidelman, W & S

Objective-Prism Spectroscopy
Astronomical Data Files
Astronomical Curiosities

Barry Turner, NRAO

Interstellar Molecules

Pierre Demarque, Yale

Evolution of Luminous Low-Mass Stars
Rotating Cores in Old Stars?
Models for Galaxies

Stephen Strom, KPNO

Observations of Pre-MS Evolution
Herbig-Haro Objects and the
Stellar Population of Dark Clouds

Prospective Participants write to John Percy by May 20.

Single and married quarters available in residences.

EDITORIAL

Some Thoughts at Term's End

There is only one day in the year that gives me greater pleasure than the last day of lecturing - and that is the first day of lecturing in the next session.

In every class there are a few students who make an impression in one way or another. I recall, in 1946 or thereabouts, a slim young girl from Niagara Falls who lasted only a few weeks in my course and then told me she was switching to law because she already had her sights set on a political career. Her name was Judy LaMarsh. Remember her?

Two years ago there was David Z who seemed a little eccentric from the beginning but who did reasonably good work until about March when he became completely unmanageable and we had to have help from the University Police. It was only then that it transpired that he wasn't registered in the University!

Last year Paul B took advantage of a project to learn position-finding by bubble sextant. Paul became more and more engrossed in the history of navigation to the point that I feared he was going to lose his year. Now he corresponds fairly regularly with three or four experts in the subject and is preparing to do graduate work in it.

This year Nelson C. stands out in my mind because of the ingenuous manner in which he touched my vanity. We had had many little after-class sessions because Nelson, though no genius, has that quality of a really good student of wanting not just to know the answers but to understand them. At the conclusion of our last such session he suddenly burst out with, "Gee, Doc, I've been waiting for a guy like you since I was 14! "

J.F.H.

OBSERVING

Demise of the Old Microdensitometer - by Tom Bolton

As many people already know, DDO is getting a new high-speed, computer-controlled microdensitometer. We expect to take delivery on this instrument in early July. In order to make room for this machine the old microdensitometer will have to be removed. This is to be done one week after the publication of the May DDD. There will then be a three month period (approx.) when no microdensitometer will be available. Therefore, anyone needing to use a microdensitometer between now and August should get his work done now.

In order to install the new microdensitometer it will be necessary to remove the concrete pier on which the present instrument rests. This will be a noisy, messy job. We apologize for any inconvenience that this may cause.

The old instrument was built in the Observatory workshop in about 1937 by Dr. Young and Gerry Longworth following closely a design by Dr. C.S. Beals, then at D.A.O. In its original form it utilized a galvanometer and a spot of light falling on a long slit behind which a cylinder rolled a sheet of photographic paper.

J.F.H.

To Guest Investigators at Las Campanas

Prospective applicants for observing time are reminded that the observing schedule for the period July-December 1974 will be made up in early May 1974 and are invited to submit their applications for that time.

It has been decided as a matter of policy that, in using the 24-inch telescope at Las Campanas, guest investigators should be assisted at all times by the U. of T. Resident Astronomer.

It is also policy that, since the U. of T. Resident Astronomer is available for assistance and since accommodation on the mountain is limited, observing time will normally be granted to only one observer at a time. Two observers can be accommodated only with great

difficulty but special requests will be considered. Under no circumstances will three observers be accommodated at one time.

Robert F. Garrison,
For The Las Campanas Telescope Committee

COMINGS AND GOINGS

Donald MacRae attended the annual meeting of the "Council of Institutions" of the Universities Space Research Association in Washington D.C. on April 1 as the representative of the University of Toronto. He was elected to the Board of Trustees for another three year term as Trustee-at-Large and at the first meeting of the new Board he was elected Chairman for 1974-75.

Bob Garrison attended the A.A.S. meeting in Lincoln Nebraska Mar. 26-29. On April 16, following a brief visit to the University of Michigan, he gave a colloquium at Indiana University on "Galactic Structure from the Southern Hemisphere". From April 17-19 he visited his Alma Mater (and Alan Irwin's), Earlham College, where he gave a series of talks including the topics "Life on Other Worlds" and "Astronomy in Canada and Chile".

Sidney van den Bergh took part in a galactic systems workshop in Charlottesville Apr. 8-10, giving a talk on "The Stellar Population of the Nuclear Bulge".

Bob Deupree attended the Mar. 26-29 A.A.S. meeting in Lincoln, Nebraska.

SEMINARS

APRIL Seminars were as announced in DDD 7/3 .

MAY

Tues. 7th Bill Harris, "The Brightest Stars in Globular Clusters"
DDO 4 p.m.

Thurs. 9th Dr. D. Milne, University of Illinois Observatory, "Supernovae".
Mc1. 137
3:00 p.m.

PAPERS SUBMITTED IN APRIL

R.G. Deupree	Non-Linear, Adiabatic Non-Radial Stellar Pulsation: Calculations and Applications
J.P. Vallee	A Note on the Linear Polarization in the Emission Frame for Radio Galaxies and Quasars.
P.G. Martin J.R.P. Angel	A Study of the Birefringence in the Interstellar Medium in the Direction of the Crab Nebula
Wm. Harris	On the Brightest Giant-Branch Stars in Globular Clusters
R. Racine	vB130: A Nebulous Cluster with an Abnormal Extinction Law.

P O T P O U R R I

May DDD

In the absence of Jack Heard, Don Fernie will produce the May Doings. Please address your little billets doux to him for a May 17 deadline.

New NRC Assoc. Comm.

The membership of the new Associate Committee for Astronomy of the National Research Council has recently been announced. It includes two members from DDO, Sidney van den Bergh, who was nominated by the Royal Society of Canada, and Donald MacRae. Donald MacRae has been appointed as Chairman. The Committee, which also functions as the National Committee for Canada of the IAU, spans the three-year period from April following one meeting of the IAU to March following the next.

Teachers' Workshop

The Workshop for Teachers organized in the Department by John Percy and held on April 6 attracted an attendance of over 100 primary and secondary teachers and was well received.

Derek Sida, who returned to Carleton at the end of March after spending a few months of his sabbatical with us, was back on Apr. 26 to address the Toronto Centre of the RASC on "Time, Relativity and the Expanding Universe".

GASA GAMBLES

The Graduate Astronomy Students were hosts of a very successful Monte Carlo Night at Barry and Cathy Madore's Apartment on Huron Street on April 19. Guests were provided with \$3500 each for starters, and such well known croupiers, card sharks and crap shooters as Barry Madore, Bob Chambers, Dave Hanes and Roslyn Shemilt tried to take it away from us. What they couldn't get that way they chiselled out of us at a phony auction sale. However, the disgruntled clients got their revenge by eating the hosts out of house and home until 2 a.m.

Elected

Maurice Clement was elected to the General Committee of the Arts and Science Council.

Yale-bound

Gretchen Hagen and Bill Harris, who will be married in August, are going to live together after all. Bill has a PDF and Gretchen an Instructorship - both at Yale.

Appointed

Mrs. Ingeborg Zilkalns has been appointed assistant secretary at the Observatory replacing Jennie Fabian, commencing April 29/74.

Erratum in Final Item

Some copies of last month's Final Item had it that John Harrison arrived in Jamaica with the Harrison watch giving a longitude for Jamaica only 1" in error. That was a Maxwell demon dancing on the shift key; the error was actually 1'.

FINAL ITEM

Harvard in Peru

The current fashionable enthusiasm for erecting astronomical observatories in South America is by no means new. As far back as the nineteenth century a number of stations flourished there, some established by local governments, others as the southern extensions of northern observatories. Among this second group, the most famous probably was Harvard's station in Peru.

In the late-nineteenth century the Harvard College Observatory enjoyed a world-wide reputation for the vast sky surveys it engaged in. The many thousands of photometric and spectroscopic observations that would eventually culminate in the

great Henry Draper catalogue were already underway in 1888 when Edward Pickering, the director, began to look for a site that would enable him to extend the surveys into the southern skies. The following year a small party led by Solon Bailey set out for two years of exploring for a site on the west coast of South America.

As one might guess, it called for considerable physical and mental hardiness. Clambering around the foothills of the Andes, led by guides who often turned out to be less knowledgeable than they had at first seemed, life and limb were frequently in jeopardy. At times the explorers suffered mountain sickness from climbing at the high altitudes, and even the lower mountains offered hazards: "We were fortunate in getting down the mountain without damage to ourselves or the apparatus - Four mules loaded with lumber rolled down the mountain some 20-30 feet and lodged among the rocks, but by some kind fate which seems to watch over observatories and mules they escaped without broken bones...." Pickering, back in Cambridge, need hardly have been surprised that some of the photographic plates sent back were damaged at the edges. He wondered whether they had perhaps been gnawed by insects. But no, replied Bailey, "I am inclined to think the plates have been injured ... by the tanks more than by insects. The only insects that appear to be abundant here are fleas and scorpions and they have thus far evinced a prejudice in favor of us rather than dry plates...."

The expedition revealed that probably the best site was Pampa Central in the Atacama desert of Chile, but Bailey was put off by the grim barrenness and isolation of the place, and instead opted for a site near Arequipa, a town of some 30,000 in Peru. In later years, caught in the midst of civil war, he may have had cause to reflect on that decision.

While Bailey went home for a well-earned rest, William Pickering, Edward's brother, went out to get things going at Arequipa. The whole scheme nearly collapsed at this stage, thanks to William's total ineptitude. He was truculent and domineering, intensely disliked by all around him; he spent money with complete abandon, demanding his brother send him more whenever needed, and worst of all, he simply ignored the important observing programs for which the station had been set up. You may recall that he was instead firing off cables to American newspapers about the Martian canals and lakes he was observing. Edward, with no little difficulty, induced his brother to return home, and by early 1893 the reliable Solon Bailey was back in Arequipa sorting out the mess.

Within a few months there began to be rumbles of a revolution in Peru. Bailey at first looked on this with some jocularly ("We might have to remove the lenses and use the telescope tubes for cannon"), but by September his reports home were somewhat more severe: "We have two or three revolvers and with the addition of a few good clubs I think we should be able to keep off any drunken rabble..." The disorders spread, and before Christmas there was rioting in Arequipa and the troops had shot a number of people. In January, when Bailey, his wife, and an assistant were returning from the town of Mollendo, their train was captured by revolutionaries: "I was reading, when we heard a tremendous shout of 'Viva Pierola'. I looked out only to see a crowd of men armed with rifles and revolvers come rushing

around the train and into the car. The car was at once filled with cries of 'Jesus Maria' and 'Por Dios' by the ladies and children.... We were sent back to Mollendo while the men followed us in another train which they had captured. When near the town they left us locked in the car and forming in line marched in and took the place in a few minutes." The Americans spent a tense night in the home of a steamship agent, their host standing guard with a revolver, aided by Bailey with a club, while government troops recaptured the town.

Within two weeks Arequipa was besieged and there was bloody fighting on the outskirts. Bailey took out the telescopes' objective lenses and buried them in a deep pit for safekeeping, noting laconically that it was as well that the revolution had come during the cloudy season. Then they ran the American flag up over their house, closed the shutters on the windows, and sat back to wait out the siege.

Edward Pickering wrote warlike letters of advice. He comfortably noted that they were in "a stone house which cannot be burned from the outside.... The greatest danger is that using a stick of timber as a battering ram, any ordinary door can be broken in. The scarcity of wood in Peru diminishes this danger. Loop holes through which you can see what is going on, and if necessary fire without danger might prove very useful.... Can you conveniently pour buckets of water (preferably hot) on persons attempting to force an entrance?"

Perhaps it was as well that these letters only arrived after it was all over. The revolutionaries won, and Bailey promptly and prudently entertained their leader and his lieutenants at an observatory reception, apologising to Pickering for the twenty dollars expenditure.

After this Harvard's Arequipa station settled down to hard astronomical work, turning out the invaluable results that went back to Cambridge for incorporation in the great catalogues. In particular Bailey began the work for which he became most famous: the discovery and classification of variable stars in globular clusters.

But with the passing years the Harvard astronomers came to be dissatisfied with Arequipa as an observatory site. The cloudy season was just too cloudy, and in 1908 it was decided that the entire operation would be moved to South Africa, where there were better sites. The indefatigable Bailey was sent off once again to travel across the Cape Colony, the Orange Free State, the Transvaal, and Rhodesia, searching out suitable sites. He finally picked one near the town of Bloemfontein in the Orange Free State, only to learn that financial setbacks had forced cancellation of the plans. Eventually a change of fortunes allowed the move to be made in 1927, just a few years before Bailey's death. If the astronomical returns became greater, the excitement, I suppose, was less.

J.D.F.