



DAVID DUNLAP DOINGS

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1976 Christmas Countdown at the Observatory

GUEST EDITORIAL

I was surprised and distressed on the day after Christmas countdown to hear Irene expressing concern that she had committed a social blunder by offering a contribution at the countdown since hers was the only non-academic contribution. I hastened to assure her that not only had she not committed a blunder, but that her song was one of the highlights of the day. At the same time I was led to ponder the nature of "class structure" in the University.

It seems to me that "class structure" within the University community is a paradox. On the one hand we are a community of scholars whose mission is the creation and communication of knowledge. The entire community (academic staff, students, and non-academic staff) must be involved in this, and to do it properly we must all learn from each other. In my mind the importance of the non-academic staff in this process has never been emphasized as strongly as it should be. The best learning environment is one in which there are the fewest social and physical barriers to communication.

On the other hand the University is necessarily an elitist institution. This creates one kind of class structure. Another is created by the great job differentiation that is necessary because of the complexity of the University and the specialized nature of many of the tasks that must be carried out. As a result, enormous communication barriers can be erected in the form of social custom, job compartmentalization, or sometimes just geographical remoteness. These problems appear to be growing worse as the financial position of the University declines and each group fights for a larger piece of a diminishing pie.

I do not have any solutions to propose that will sweep away "class" and communications barriers. However, it does seem to me that there is one distinction between academic staff and students on the one hand and the non-academic staff on the other that we could go some way to removing. The former group sees the tangible results of their efforts in the form of published papers and theses while the latter's only rewards come in their pay-cheques and perhaps an occasional word of praise (although human nature is such that I suspect even our best staff are more apt to get a kick in the seat of the pants than a word of praise). I think that the non-academic staff are most likely to feel that their work is valuable (and valued) if they are kept fully informed of the work of various students and staff, its implications, and its importance. I know from experience that many of the non-academic staff are very curious about the work going on in the department.

I believe that the non-academic staff can best be kept informed by informal conversations. These will only take place when the communication barriers are breached, and that requires that the academic and non-academic staff and students be thrown together frequently in informal situations. That is why I think that activities such as communal coffee breaks, volleyball, parties, tea before countdowns, and Christmas countdown are essential to the health of the Department.

I think that Irene did us a service by contributing to the Christmas countdown since there have been few if any non-academic staff contributions in the past. I hope that she has broken a barrier, that there will be many more such contributions in the future, and that these will diminish whatever barriers divide us.

Tom Bolton

COMINGS AND GOINGS

Sidney van den Bergh has started a six-month sabbatical by spending the first two weeks of January at the Hale Observatories. He then moved on to the AAS meeting in Honolulu, January 16-19, and was at NASA in Washington, January 24-28, to review astronomical applications for Space Shuttle II.

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Bob Garrison also continues his sabbatical travels. He spent the second half of January at the Institute for Astronomy in Honolulu, and in early February was due for a week in Berkeley, continuing on to UBC for the second half of the month.

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We record with regret that Martha Fraser resigned her position as Departmental Secretary at the end of December. A permanent replacement has not yet been found, but Olga Thompson is Acting Secretary for the present.

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Old friends who have visited the Observatory recently included Bill and Vicki Sherwood (both M.Sc. 1967), back from West Germany with their daughter Kim for a short visit.

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Chris Smith gave a talk on An Astronomer's Life in Chile to the December meeting of the Toronto Centre of the RASC.

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Don MacRae gave a talk, Canadian Telescopes Worldwide, to the Royal Canadian Institute on January 15.

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Don Fernie has been appointed a Harlow Shapley Visiting Lecturer of the AAS. He begins with a visit to Brock University on February 1.

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LIBRARY HAPPENINGS

Those of you who have had occasion to browse among the books in the DDO Library recently will have noticed the major change which has taken place in their arrangement. Although you may think so, it really isn't a plot which has been designed to confuse you! Admittedly, it can be very frustrating for the unsuspecting soul to venture to a familiar place on the shelf and find to his or her horror and amazement that those beloved volumes she/he has grown accustomed to seeing are no longer there. What has happened is that all of the library's monographs have been reclassified back to the Library of Congress (LC) Classification Scheme and are subsequently located elsewhere on the shelves. The majority of our books are now found in the QB (astronomy) Class. Within this Class, they are subarranged into sections similar to the ones which comprised the department's own classification scheme i.e. "general astronomy", "the solar system", "astrophysics", etc. Signs will distinguish one section from another to facilitate browsing.

In conjunction with the change to LC, the library has acquired a micro-catalogue. As the name implies, it is comprised of microfiche cards containing U. of T.'s catalogue records (with a few exceptions). Now you don't have to run to the main library every time you want to find the location(s) of a particular item. The microcatalogue is really much too exciting to talk about here, so come and try it out for yourself!

Remember, if you have any questions about anything at all (to do with the library!) please don't hesitate to ask. Comments and suggestions are welcome too.

A most welcome part-time assistant in the library for the past three months (and a few more to come, we hope!) has been Ana Smith, Chris' wife. She has had considerable experience as an astronomical librarian in Chile, and has proved very useful in the library's changeback to the LC system.

Zane Sterns.

SEMINARS

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| January 4 | Kayll Lake, University of Toronto,
"Primordial Inhomogeneities" |
| January 11 | William Sherwood, Max Planck Institut für Radio-astronomie, Bonn,
"Infrared Observations of Galaxies" |
| January 18 | Werner Israel, Institut Henri Poincaré, Paris,
"Which Travels Fastest: Heat, Light, or Sound?" |
| January 25 | Myron Lecar, Center for Astrophysics, Cambridge, Mass.,
"The Universe: Open or Closed?" |

- February 1 Charles Dyer, Scarborough College,
"Lumpy Universes: Theory and Observations"
- February 8 Myron Smith, University of Texas,
"Non-Radial Pulsations in Early to Mid-B Stars"
- February 14 Reading week -- no seminar is scheduled
- February 22 John Percy, University of Toronto
"Multimode Cepheids"
- March 1 Ernie Seaquist, University of Toronto
"Radio Emission from Selected Novae, Emission-Line Stars,
and X-Ray Sources"

SCARBOROUGH OPENING

Astronomy took a great leap forward at Scarborough College on the evening of Friday, November 5, with the formal opening of the new dome to enclose the 8 inch Celestron telescope and Schmidt camera. With the guidance of Prof. Roeder, ribbons were cut by Profs. Corben and MacRae. Prof. MacRae's attire was most appropriate since it included white gloves and "topper" that could well have seen service on that other momentous occasion, the opening of the D.D.O., some years ago. An observing session for the many guests was followed by a reception in the faculty lounge, which included the warming influence of "gluh-wein".*

Charles Dyer

**The faults were presumably overlooked after sufficient gluh-wein -- Editor.*

PAPERS SUBMITTED

- S. Jakate Photoelectric Photometry of AC And.
- K. Lake and R. Roeder Effects of a Non-Vanishing Cosmological Constant on the Spherically Symmetric Vacuum.
- H.S. Hogg and A. Wehlau Red Variables in the Globular Cluster Messier 22.

- A.W. Irwin and R.S. Freedman A New Analysis of the Optically Derived Lambda Splitting of SiH.
- S. van den Bergh and A. Leir A Study of 1889 Rich Clusters of Galaxies.
- S. van den Bergh The Old Open Cluster NGC 2243.

P O T P O U R R I

Congratulations go to Helen Hogg on the announcement that she will receive an honorary degree from U. of T. at a special Sesquicentennial Convocation on March 15. Eight U. of T. professors, past and present, will be so honoured, of whom Helen is the only woman.

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With Sidney van den Bergh's departure on sabbatical, a small committee has taken over the running of the seminars. The members are Maurice Clement, Don Fernie, John Lester, and Robert Roeder. Anyone wishing to suggest a speaker should see one of these.

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John Percy reports that three of the four speakers at this year's June Institute have now accepted invitations as such. They are Anne Cowley, Beatrice Tinsley, and Ken Pounds. Dates for the Institute will be May 31 to June 3 inclusive.

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The current president of the Canadian Astronomical Society announces firmly in the latest issue of Cassiopeia that "The population of Canada comprises 189 professional astronomers." Monday morning rush-hour on the subway might lead one to reconsider that figure, but the interesting statistic that René goes on to deduce from that number is that there are only 9 astronomers per million of Canada's population, whereas in most developed countries the figure is 10 to 15 (13 in the U.S.). So Canada is deficient in astronomers! (And incidentally, René's statement is perfectly correct; it is an interesting use of the formal as against the more customary informal use of the word 'comprise'.)

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THE STRASBOURG BIBLIOGRAPHY

Have you ever spent hours looking through 25 years of the Astronomische Jahresbericht and Astronomy and Astrophysics Abstracts trying to find all of the papers referring to β Whatsis? Did you ever find that the discovery of that fantastic

new behaviour in β Whatsis that it took you months to find had already been announced in the notes to Table IV of the paper "500 Miscellaneous Observations of 200 Uninteresting Stars"? If so, your troubles are over! Well, almost.

I recently discovered (quite by accident) that the Strasbourg Observatory has compiled a Bibliographical Star Index which the DDO Library has acquired. The index is described in a few mimeographed pages which can be found with the Strasbourg Observatory Publications in the stacks. The index itself is on microfiche which can be found with the Ap.J. microfiche on the first floor. The present version lists all references to individual stars found in twelve major journals (four of which are no longer published) between 1950.0 and 1973.0. The only omissions are those papers which refer to more than 1000 stars. These have been arbitrarily called catalogues. Such papers are listed separately in the description. The Index also includes planetary nebulae, but the coverage is only from 1965.0. A supplement covering the years 1973/74 and many more journals is promised for early this year.

The index itself consists of 7 microfiche pages. The first is a chronological list of papers. The papers are numbered in the form 55-602. The first two digits denote the year of publication and the others are a running number for index purposes. The next three fiche pages list all references to HD stars. Alternate designations are given for most of the stars. The next 2 fiche pages are a listing of all references to variable stars. The listing has the same order that is followed in the General Catalogue of Variable Stars. The final fiche page contains all the references to stars with no HD or variable star designation but some catalogue number.

The Index is very easy to use. The chief drawback is that the description is not on the fiche and is located in a separate place. This problem could be solved by abstracting the important information from the description - especially the tables of journals surveyed, "catalogues of more than 1000 star citations", and catalogue designations used - and typing it onto file cards which could be kept within the microfiche box.

Tom Bolton.

REVISIONIST'S CORNER

Those of us who labour in the cotton fields - or nettle fields - of elementary astronomy courses are forever bemused by our students' revision of astronomical knowledge as reported in their exam papers. I thought it might be mildly amusing to give an example in each issue of the Doings, so you tutors and instructors who have had good ones lately, please pass them on to me (Don Fernie). For starters, here's one that came my way recently:

Galileo's greatest contribution to astronomy was to prove the stars are among the planets, thus disproving Copernicus' idea that the planets are beyond the stars.

F I N A L I T E M

The Roosevelt of Astronomy. I.

Astronomy, if we are to be honest, is not a subject that sustains any profound grip on the public mind. It has its place, of course, somewhere between bird-watching and home photography, about a light-year behind such issues as National Hockey League scores or the latest misdemeanors of the Federal Government. We have our eight-day wonders, the Comet Kohouteks and all that, but very rarely can it be said that an astronomical subject has held public attention year upon year. Meet, then, a man who singlehandedly achieved that distinction in the early years of this century: Percival Lowell.

Percival Lowell was born in Boston in 1855 with a very distinct silver spoon in his mouth. His family was immensely rich and carried all the social prestige of a long line of lawyers, diplomats, Congressmen, and the like, who could look back to the first Lowell's arrival in the New England of 1639. Talent abounded, particularly in Percival's generation: his brother would become President of Harvard, his sister Amy a literary star, and a cousin, James Russell Lowell, the foremost American man of letters of his day. None would attain more public recognition than Percival.

He received the very best of educations, both in the United States and Europe, and in 1876, aged 21, graduated from Harvard with distinction in mathematics, a prizewinner in history, and election to Phi Beta Kappa. His mathematics professor at Harvard had been Benjamin Peirce, who no doubt drew Lowell's attention to a good deal of astronomy, but it was in quite another direction that the young Percival first set out.

Throughout the 1880s he lived and travelled very extensively in Japan and other remote parts of the Orient, achieving such an intimate knowledge and understanding of those countries that he was later used as a consultant by various American agencies. Japan at that time had not long been opened up to Westerners, and was still much of a mystery to the Occidental mind, so that when Lowell began writing books about the East he found a ready readership. This was helped by his undoubted talents as a writer; he wrote in strong, direct, colourful language under titles such as Choson - the Land of the Morning Calm and The Sound of the Far East. His writing ability, not to mention his brilliance as a lecturer, would play no small role in his later astronomical affairs.

Returned to the United States in the early 1890s, Lowell, only approaching middle-age, was already a man of experience and renown, backed up, of course, by his great wealth and social prestige. His character and personality were strongly formed: a man of action and aggressive opinions, used to getting his own way, not easily dissuaded by criticism, interested in a great variety of subjects. The very traits, in fact, that would later lead an inspired journalist to hail him as "the [Theodore] Roosevelt of Astronomy." If only wisdom could have been part of his makeup.

Lowell read on a great diversity of topics, and with his Eastern experience of matters foreign to Western intellectuals, he was always on the look-out for the off-beat and unusual. And in astronomy he found just such a topic, one to which he would devote the rest of his life, and which would make his name a household word even beyond his death. The canals of Mars.

At the opposition of Mars in 1877 Giovanni Schiaparelli had thought he could discern faint lines on the disk of the planet, to which he gave the name 'canali'. This is actually the Italian word for 'channels', but not unnaturally it was translated into English as 'canals' - a semantic misfortune, for while canal connotes an artificial origin, channel does not. The interest generated by this observation had been recently further stirred up by the wild claims of William Pickering in Peru that he had seen lakes at certain points on Mars. Lowell, learning that another opposition of Mars was due in 1894, decided this to be a problem after his own heart, and with characteristic enthusiasm threw himself and his considerable resources into its investigation.

Never one for half-measures, he decided that searching for the canals of Mars called for the establishment of a major new observatory. At first an alliance was struck up with the Harvard astronomers, and William Pickering, freshly returned from his triumphs in Peru, along with his assistant Andrew Douglass, became part of Lowell's team. (The alliance was rather short-lived; cooperation between two such dogmatic and opinionated men as Lowell and Pickering could hardly last, and Lowell was further angered by a *Boston Herald* report that the whole thing was a Harvard scheme to be led by Pickering, with Lowell merely "going along".)

New England being no place for an observatory dedicated to searching for fine detail on a planet's face, it was decided to investigate sites in the Arizona Territory. And here we must accord Lowell one of his really important contributions to astronomy: he became the vociferous champion of the idea (first suggested to him by Pickering, mind you) that in choosing an astronomical site it is just as important that it have good seeing as that it have clear skies. This was a novel idea then, for previously astronomers had been content with any site that offered merely good transparency, and even that was usually waived in the interests of expediency, an attitude which Lowell castigated as "scientifically criminal neglect." Later, when most of his peers declared themselves unable to see Martian canals, Lowell would return again and again to the matter of seeing, using it as a stick with which to joyfully beat his enemies. If they couldn't see canals (or similar markings on Venus), whatever their instruments and abilities, it was because they always had inferior seeing:

How hard it is to break away from this facile prejudice [of putting observatories near university campuses] has just been shown by the location of the new Yerkes Observatory which has just buried its glass in Wisconsin and from which Dr. Barnard writes me that he has been unable to make out the markings on Venus.... The same innocence was shown by a critic at the Lick who with more polemic zeal than optical knowledge actually imputed impossible effects to the Flagstaff glass in his anxiety to explain his own inability to see the new discoveries, ignoring what he had himself stated some years ago, that the day-air at the Lick is wholly impossible.

So it was that Douglass was packed off to Arizona with instructions to find a site having good seeing as well as transparency. He began his testing in Tombstone, surely a novelty even for that notorious town of the Wild West, and in little more

than a month had ranged widely across the Territory. The results were telegraphed back to Lowell in Boston, who, in his decisive way, quickly settled on a site just outside the town of Flagstaff (population 800). That was April 21, 1894; within two days Douglass was wiring "Ground broken. Town gives land and builds road." The Lowell Observatory had been founded.

By June Lowell and Pickering had arrived with 12- and 18-inch telescopes to begin the siege of Mars. It would take only months for them to have both the astronomical and public communities in an uproar.

J.D.F.