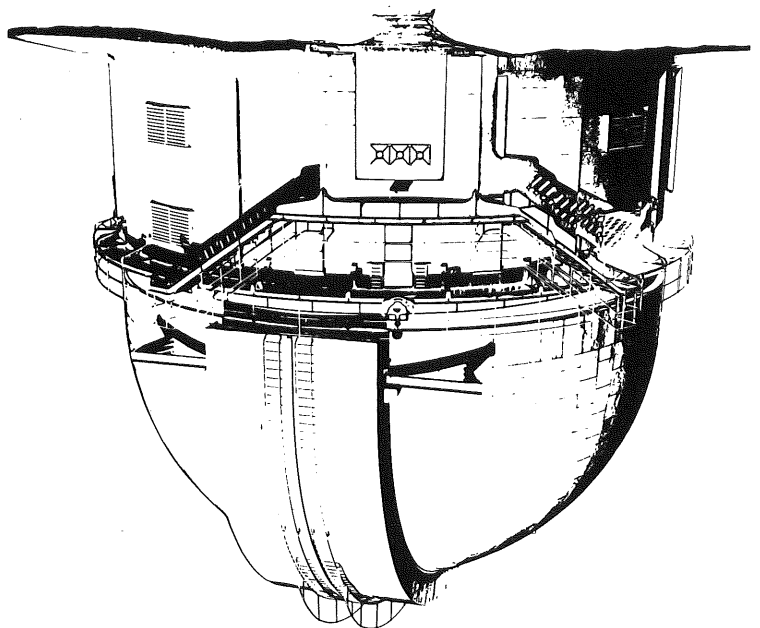


THE DUNLAP DAVID DOINGS

Vol. 13, No. 5 Sept. 12, 1980



Karl Kamper tells us how he did it

I assume everyone has noticed the new "Doings" cover, which our artists/editors worked up early in the summer. The drawing of the large dome at DDO which served us well for so many years has been replaced by a photograph mimicing a pen-and-ink drawing through the use of the Sabattier effect. It is, in fact, an isophotal map of dome and sky done without benefit of PDS.

The Sabattier effect arises when a developed but unfixed film is exposed to diffuse light and developed further. The result is a complete or partial reversal of the original image. Two causes are involved: first, the developed grains tend to shield the undeveloped during the second exposure and, second, the by-products of development tend to desensitize the grains to further exposure. We achieved partial reversal by exposing a copy of a negative of the dome, developing it partially, flashing it with the room lights for a few seconds, and then completing development. The result is a copy whose density increases with increasing first exposure for the weaker intensities; then the density decreases with exposure before increasing again at higher intensities, so that the copy is slightly transparent at points corresponding to a certain original scene intensity and nearly opaque everywhere else. To facilitate printing, a second copy was made on high contrast film (now black lines on a light background) then a third copy (white lines on black) was made on lith film and from this the prints were made after retouching out the dreary mounds of snow (in case you have forgotten, it is winter most of the time at DDO). The original shot, by the way, was made in red light to get a better sky-to-dome contrast.

You can find a more complete description of the Sabattier effect in Mees and James or any other standard photographic reference. There is also a commercial film, Agfacontour, which does the first step without the necessity of a fogging exposure using instead a two-component emulsion with the slower developing component poisoned by the by-products of the faster. I've used that, too, with success. Agfacontour has been used in a number of astronomical applications, mostly published by Tautenburg, Zeiss-Jena, and Vienna. The most impressive example is Högnér and Richter's Isophotometrischer Atlas der Kometen in the chart room.

Barry F. Madore

Beatrice Tinsley reviewed the conference by saying that she felt that there would probably never be another meeting with the title of "Normal Galaxies". I left the next day to finish off a southern galaxy survey with Halton Arp.

Massive dark halos around spirals were not in question; they are now almost a matter of orthodoxy. A proliferation of optical rotation curves show this unseen massive component continuing out to radii verging on the optical limits of the galaxies studied. Ninety percent of extragalactic studies, it would seem, are concerned directly with only a few percent of the mass. The consequences are frightening, but the theorists were quick to rise to the occasion, and almost every galaxy formation model had a massive invisible halo keyed into the computer code.

It is indeed impressive to see the quality and quantity of data flowing out of the large telescopes at last. With less observing time being devoted to enigmatic quasars, galaxy research is seeing a real resurgence. Elliptical galaxies, once mundane objects of the first order, dominated the first week of the conference. Now that it is generally established that most ellipticals are not rotationally supported, theorists are having a field day trying to explain the formation and maintenance of anisotropic velocity fields. Ad hoc initial conditions seem to be favoured over tidal mergers, but several types of ellipticals with different origins may also be clouding the issue. To complicate it even more, faint surface brightness features have been detected showing ring-like or shell structures and even spiral arms around systems once considered to be pure ellipticals.

For two weeks at the beginning of August, the Institute of Astronomy in Cambridge, England was host to a Nato Advanced Study Institute on Normal Galaxies. Canada was well represented on all fronts with invited morning reviews being given by Scott Tremaine on Dynamical Friction, John Kormendy on Bars and Lenses, Sidney van den Bergh on the Local Group, and Barry Madore on The Rate of Star Formation in Near-by Galaxies. Bob McClure, Dave Hartwick and Kim Inmanen were also there and Wendy Freedman reported on her galaxy evolution models before an audience who will not soon forget her presentation.

Barry Madore reports on the "Normal Galaxies" Conference at Cambridge

CONGRATULATIONS

To Barry Madore. A recommendation that he be appointed to our tenure-stream Assistant Professorship beginning July 1, 1981 has been forwarded to the Dean.

To Charles Dyer and Dave Turner, both of whom have been awarded NSERC University Research Fellowships. Charles will be continuing his research and teaching at Scarborough College, and Dave will use his fellowship to return to Laurentian University in Sudbury. NSERC University Fellows are expected to devote most of their time to research, but may do a limited amount of teaching. They automatically receive an annual NSERC Operating Grant of \$10,000 for the first three (of the five) years and may also apply for additional NSERC grants on the same basis as regular university faculty.

To Marko Pedrehos who passed his Oral General Examination in July.

To Frank Hawker, who obtained his private pilot's license in August.

To Karen Finstad who has been named a Junior Fellow of Massey College and has taken up residence there.

CFHT NEWS

In an earlier issue (Vol. 13, No. 3, May 15, 1980), DDD referred obliquely to the anticipated appointment of René Racine as the new Director of the Canada-France-Hawaii Telescope. At that time the Board of Directors of CFHT had still to formally appoint him. They have now done so and René and Claudine have moved from Montreal to Waimea and settled in. René has made many substantial contributions to the CFHT project over the last 7 or 8 years and his appointment cannot help but be applauded. We send hearty best wishes to René as he undertakes his new duties.

COMINGS AND GOINGS

On September 3, Alan Irwin and his wife Barbara left for Victoria where Alan has a postdoctoral position in the Astronomy Department at University of Victoria. Alan completed his Ph.D. here in 1978. Since then, he has been working as a Research Associate with Peter Martin as well as pursuing his own interests in spectroscopy.

Linda Twetchin is resigning her position as typist at DDO effective September 16 in order to take up a secretarial post in the Institute for Environmental Studies. Linda joined the Observatory staff in 1972, and for the past several years, she has served as the "Production Department" of the *Doings*. The editors take this opportunity to wish Linda good luck in her new job and to thank her for the skillful and speedy work she did on each issue.

Bill Gilmore, who has been a post-doc with Ernie Seagrist for the past two years, left Toronto on September 6. Bill's immediate plans include a round trip between Toronto and his home-town Terre Haute Indiana followed by a holiday in the Gaspé, and later on, a road trip to the west coast. As Bill described it, his departure has "side lobes".

Gail Archer resigned as typist in the DA office in July to take a position with a financial consulting firm. Gail had been with us since November 1978.

This month we welcome Maria Wong to the DA office. Maria taught elementary school in Hong Kong for four years before emigrating to Australia in 1978. She met her husband, Stephen (a Canadian) while in Hong Kong, and they were married in Australia a year ago.

P O T P O U R R I

Chris Conbally attended a conference with a difference or two in late July. It lasted a week on a spartan island off Portsmouth, N.H., and was run by the Institute on Religion in an Age of Science. (Chris did not give us the island's name or describe how spartan it really is....eds.) Astronomers are no strangers to the Institute. Harlow Shapley was its Founding President, and this year's theme of "Change, Aging, and the Passing of Time" attracted Robert Jastrow as the first speaker.

John Percy and Don Fernie attended IAU Colloquium 58: "Stellar Hydrodynamics" at Los Alamos Scientific Laboratory, August 12-15.

In our last issue, we were incomplete in reporting on U. of T. members on the new NRC Associate Committee on Astronomy. The list should have included Bob Garrison as well as Bob McLaren and John Percy. Bob Garrison is also serving on the Associate Committee on Space Research.

Dan Nadeau was the successful candidate for the faculty position at Université de Montréal. Dan is busily finishing up his dissertation in infrared astronomy at Cal Tech. He expects to move to Montreal in October.

David Burstein from NRAO, Charlottesville was here on September 3 and gave a colloquium entitled "Surface Brightnesses of Galaxies".

There was a farewell party for Henry King on June 19. Among those attending were Helen Hogg, Don and Yvonne Fernie, Don and Betty Mackae, and Tom Clarke, who acted as master of ceremonies. Henry and Mary King left shortly afterwards for England where they have bought a fine house complete with a garden dear to Henry's heart.

Bary Madore is now the staff member who will assist the librarian, Zane Sterns, in book selection and other matters pertaining to the DDO Library.

COLLOQUIA*

September 17 Geoff Clayton and Karen Finstad, University of Toronto
G2000 - Current Literature Seminar

September 24 C.M. Walmsley, Max-Planck-Institut für Radioastronomie
"Cold Condensations in Dark Clouds: Precursors of Low-Mass Stars"

October 1 Mario Pedreros and Chris Rogers, University of Toronto
G2000 - Current Literature Seminar

October 8 Charles Dyer, Scarborough College
"Gravitational Lenses: Realistic Models"

October 15 Louis Noreau and Donna Zubrod-Grievé, University of Toronto
G2000 - Current Literature Seminar

October 22 J.P. Vatié, Queens University
"Synthetic Astronomy"

October 29 Gerry Grievé and Neb Duric, University of Toronto
G2000 - Current Literature Seminar

November 5 T.B.A.

November 12 Wendy Freedman and Rick Crowe, University of Toronto
G2000 - Current Literature Seminar

November 19 Wojtek Krzeminski, Nicholas Copernicus Astronomical Centre, Warsaw
"Ultra-Short Period Cataclysmic Binaries"

* Unless otherwise noted, colloquia are held on Wednesdays at 4:00 p.m. in Room MP 134 with TEA at 3:45 in the Reference Room, MP 1404.

PAPERS SUBMITTED

Harvard 20, A Cluster Containing a Yellow Supergiant

D.G. Turner

Short Period Light Variations in Be Stars

J.R. Percy,
S.M. Jakate and
J.M. Matthews

In Praise of Smaller Telescopes

J.R. Percy

Observations of α Andromedae. II. Spectrum
Variations

A.F. Gulliver,
C.T. Bolton and
R. Poekert

The David Dunlap Observatory

J.R. Percy

Polynomial Partition Function Approximations of
344 Atomic and Molecular Species

A.W. Irwin

Comments on the Cluster Main-Sequence Fitting
Method. I. The Distance of Ruprecht 44

D.G. Turner

The Rate of Star Formation

B.F. Madore

A Range of Time Delays for the Double Quasar
0957+561AB

C.C. Dyer and
R.C. Roeder

END OF ANOTHER ERA

Bob McLaren reports on IAU Symposium 96 - Infrared Astronomy

IAU Symposium 96 - Infrared Astronomy attracted more than 200 astronomers from 18 countries to the Kona Lagoon Hotel on the sunny west coast of Hawaii during the fourth week of June. Canadian participants included Lorne Avery (H.I.A.), Bruce Campbell (CFHT), Bob Lowe (U.W.O.), T.K. Menon (U.B.C.), and from U. of T. Bob McLaren, Chris McAlary, and Lindsey Davis. Chris presented a paper (with co-author MLr) on "Near-Infrared Spectrophotometry of NGC 4151". The rationale for holding this conference in Hawaii (apart from the obvious) was the recent commissioning of three large telescopes on Mauna Kea. Two of these (the 3-m NASA Infrared Telescope, and the 3.8-m U.K. Infrared Telescope) are dedicated to infrared observations, and the third (the 3.6-m CFHT) is also an excellent infrared facility.

The conference organizers decided to emphasize four main areas: Planetary Studies, Regions of Star Formation, Galactic Centre/Galactic Structure, and Extragalactic Objects. In retrospect it is clear that this was too diverse a set of topics, and many participants felt that the conference suffered as a result.

Among the highlights, from my point of view, was the quality and quantity of recent work in the far infrared ($\lambda > 20 \mu\text{m}$) including balloon studies of large-scale emission from the galaxy and spectroscopic observations of lines such as CO J = 27-26. Also worth mentioning was the encouraging progress reported by several laboratories in explaining interstellar "dust" features. The Orion region received considerable attention, but it appeared to me that far more questions were raised than answered. I would like also to mention Marc Aaronson's report on his work (with Huchra and Gould) on the infrared magnitude/HI velocity width correlation for galaxies and the resulting redetermination of the extragalactic distance scale. Clearly this is an exciting programme which will no doubt receive a great deal of critical attention in the future.

By far the most impressive logistical feat of the conference was the excursion to the summit of Mauna Kea. 150 people signed up for the trip, and three diesel tour buses were hired for the journey. One of the buses had successfully made it to the summit during a trial run a few days earlier - but without passengers. Fully loaded, the buses failed to make it beyond the 12,000-foot level, and the tour organizers had to quickly commandeer every available four-wheel drive to shuttle the stranded astronomers up the final 2,000 feet. The trip was well worth it, however, and I think everyone was very much impressed with the tremendous opportunities for observational astronomy that await us on that mountain.

Malcolm Longair, Astronomer Royal for Scotland, was asked to give the closing summary, and as you might expect, his remarks were lively and provocative. Malcolm announced that this would be the last Infrared Astronomy Conference since it no longer makes sense to define this very broad area of astronomy by technique. It appeared to me that he received almost unanimous agreement on this.

Bob McLaren