



DAVID DUNLAP DOINGS

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I returned and saw under the sun, that the race is not to the swift, nor the battle to the strong, neither yet bread to the wise, nor yet riches to men of understanding, nor yet favor to men of skill; but time and chance happeneth to them all.

Objective consideration of contemporary phenomena compels the conclusion that success or failure in competitive activities exhibits no tendency to be commensurate with innate capacity, but that a considerable element of the unpredictable must invariably be taken into account.

Mass-observation techniques conducted within approved spatial-temporal and socio-political frameworks yield confirmatory data with regard to the hypothesis that there is no basis for assuming that allotropic egos oriented towards homologous-goal situations will necessarily attain the gratification/deprivation balance appropriate to the psychophysical integrative abilities of an individual subject; but that, on the contrary, a random-selection principle tends to obtain in such personnel programs almost universally.

From Ecclesiastes to the 1940s to the 1970s.

TWO MILESTONES FOR THE CFHT

The telescope will be shipped from France to Hawaii during the coming summer. This decision, reached at the recent Board of Directors meeting in Honolulu, follows erection of the mechanical structure (with a dummy mirror) at La Rochelle, France, and the conclusion of its trials. The Project Office had to be sure that the components fitted together precisely, and that all the forces arising from the weight of each part were properly transmitted to ground. This had to be the case without undue distortion due to flexure or other causes and with the telescope in all positions. In words which may be familiar, the telescope "passed its Qualifying Examination, although in a few respects some weakness was apparent...." These will be corrected after disassembly, which begins on March 27, and before shipment, which is slated for July.

One of the difficulties encountered in the trials arose from the fact that a part of the telescope was missing, having been already installed below the dome observing floor on Mauna Kea. This is the massive triangular structure which ties together the north and south base piers, and attaches the telescope to the concrete stem of the dome building. At La Rochelle we had to make do with two separate piers. Believe it or not, there was an earthquake which caused them to separate by 8 mm - and we thought we had to worry about earthquakes only in Hawaii!

At the same Board meeting the primary mirror was accepted, following the report of an examination by a team of outside experts. The most difficult part of the work by Roy Dancey and his staff in the Optical Shop of the DAO has therefore been successfully concluded.

The principal specifications were 1) that 95% of the light should be within 0".5 and 99% within 1".5 (these are very tight specifications, especially the first), and 2) that deviations from a 358 cm diameter parabolic surface must not lead to changes of inclination of more than 1 part in a million in any Δr of 5 cm or less. In its present form the mirror "fits well the parabolic shape and astigmatism was found negligible", the experts said. The highest slopes are found near the central hole (diameter 87 cm) and at the extreme outer edge of the blank. The second specification above will be met so long as the central 127 cm diameter is occulted; the primary cage and the secondary cast shadows of 120 cm and 150 cm diameter. Furthermore, the blank is actually 366 cm in diameter, 8 cm more than the specified 358. The focal length, with a target value of 1350 cm, came out to be 1353.3 ± 0.3 cm. As for the energy concentration in the image, it was estimated not just geometrically but also from the diffraction point of view. It was found that 96% of the light is within a circle of 0".5 diameter; 99% is within 1".25, a figure to be compared with 0".95 for a theoretical perfectly smooth reflecting annulus and a result well within the 1".5 of the specifications.

Not bad, Roy Dancey! Congratulations!

COMINGS AND GOINGS

Christine Clement was in London, Ontario on March 17 as speaker to the RASC Centre there on the subject of current globular cluster research at the DDO.

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Phil Kronberg gave a short seminar at the Herzberg Institute of Astrophysics on February 16, and a colloquium entitled Rotation Measures as a Cosmological Test at Queen's University on March 20.

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Peter Martin was at York University on February 15 to give a seminar on Spheroidal Interstellar Grains.

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Dr. Peter Biermann, who will almost certainly be spending six months with us as a visiting professor from September 1, was in the Department March 6 en route from Bonn to the VLA. Accompanying him on the VLA run were Phil Kronberg and Jim Clarke.

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Other recent visitors have included Dave Hanes (Ph.D. 1975) and a Cambridge student, Jean Brodie, who are on their way to an observing run in Chile. Kathy Madore is in the Department for three weeks before returning to Europe, and Sidney van den Bergh came by for a day on March 13 to remind himself of what snow looked like.

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74-Inch Observing

We have been having an unusual good run of weather for the past couple of months. We had almost 136 hours of observing time in February, which breaks the previous high by more than 45 hours. As of March 19, we are less than 10 hours short of the all-time high for March. With 3 1/2 months to go we are only 70 hours short of the mean number of observing hours for a year. If the remainder of the year is only average, this will have been the third or fourth best year in the history of the Observatory.

Tom Bolton

P O T P O U R R I

Ernie Seaquist and John Percy are to be congratulated on the Dean's announcement of their promotion to the rank of Full Professor.

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Phil Teillet (Ph.D. 1977) and his wife Elaine proudly announce a new arrival in their Ottawa household: Sara Kirsten, born March 8. Phil also reports that he gave up his PDF in January to start an 18-month term appointment as Research Scientist in the Methodology Section of the Canada Centre for Remote Sensing, Ottawa.

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Word also comes from Ihor and Vera Prociuk announcing that they have bought a house in the King-Dufferin area, preparatory to the arrival of their baby in October.

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There was considerable excitement around the Observatory in late-February following the discovery by Paul Feldman, Phil Gregory, Russ Taylor, and Ernie Seaquist at ARO that HR 1099 was undergoing large radio outbursts. This RS CVn binary also happens to be on Dot Fraquelli's thesis program, and she practically ran the 74-inch red-hot getting spectrograms of the star. An immediate international observing campaign, covering all wavelengths from X-ray to radio, was initiated. Dot reports provisionally that the H-alpha equivalent widths do show a strong correlation with the radio flare activity.

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*Dyed-in-the-wool history buffs may be interested to know that the Department of Sanskrit & Indian Studies will have a seminar on April 18 by Professor David Pingree entitled *Islamic Astronomy in Sanskrit*.*

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Don Fernie has accepted an invitation to join an Ad Hoc Review Committee on Radio Astronomy in the NRC. He will be away on several dates in April to meetings in Ottawa, ARO, and Penticton.

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Early March brought the sad news of the deaths of two old DDO friends: Su-shu Huang in China, and David Thackeray in South Africa.

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Our congratulations to Dave Hartwick (Ph.D. 1966) on his award of an E.W.R. Steacie Memorial Fellowship for 1978-79. No more than two of these are awarded annually to outstanding young scientists in Canada (the other this year going to W.R. Peltier of the U. of T. Physics Department), and take the form of financial support sufficient to completely free the recipient from all teaching-administrative duties for one year. There were 21 nominations for the Fellowship this year.

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SEMINARS

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| April 4
D.D.O. | Dr. Peter Sutherland, McMaster University
"Pulsar Radiation" |
| April 11
D.D.O. | Dr. Bill Sherwood, European Southern Observatory
"OH/IR Sources and the Galactic Distance Scale" |
| April 12
McL. Rm 137 | Dr. P.C. Keenan, Ohio State University
"Problems of Classifying the Sequence of Stars S-SC-C." |
| April 18
McL Rm 137 | Dr. David Pingree, Brown University
"Islamic Astronomy in Sanskrit" |
| April 25
D.D.O. | Mr. Bjarne Everson, University of Toronto
"Gas Flows in Binary Systems" |

TEN YEARS AGO

Extracts from our issue of March 1968:

Did you count the total of the recent census of staff and students of the Department? With our spouses and descendants we now number 137. Isn't that Eddington's famous number?

Mrs. Hogg was elected to the Board of the Bell Telephone Company in Montreal last week.

Dr. Robert Garrison will spend next week-end in Toronto and area house-hunting.

It is with regret that we note that Pauline Gruenberg is leaving her position of assistant departmental secretary this week.

Serge Demers (Ph.D. 1966) is now at Cerro Tololo where he has been appointed resident astronomer. Peter Hagen, observing at Kitt Peak, watched the start of work

on the 150-inch dome, and reports that the McClures are renting a house in Tucson just a block from KPHQ. Peter and Gretchen visited Pasadena where they encountered David Hartwick in his new role of observing astronomer measuring globular cluster plates and also saw Rene and Claudine Racine who are well and happy.

The Pulsar: Dr. van den Bergh has located the faint blue star which Ryle and Bailey identify with the "pulsar" on a 48-inch Schmidt plate which he took on July 5-6, 1967.

PAPERS SUBMITTED

Sidney van den Bergh & Karl Kamper	Expansion of the Optical Remnant of Tycho's Supernova
Kayll Lake & Robert Roeder	On the Optical Appearance of White Holes
Philippe Teillet	Conservative Rotation Laws for Gravity-Darkened Stellar Atmospheres
Chris Rodgers & Peter Martin	On the Shape of Interstellar Grains

REVISIONIST'S CORNER

Oh the stress and strain of variable star work:

"By 15 blinking pairs of plates obtained in the Newtonian focus"
(IBVS # 1380)

*" $JD = 2428802.670 + 0.2010302 E + 5.932 \times 10^{11} E^2$, which implies a secular period
change of +1.86 s per century."*

(Ap.J. 219, 949, 1978)

F I N A L I T E M

The Origins of the DDO. VI.

A GREAT MEMORIAL

The important announcement has just been made that in the near future there will be established in the vicinity of Toronto an astronomical observatory which will rank with the world's greatest institutions of this sort. It will be erected by Mrs. D. A. Dunlap and her son D. Moffat Dunlap as a memorial to the late David A. Dunlap, who died on October 29, 1924, and will be known as the David Dunlap Observatory.

Astronomy and geology were both favorite studies of Mr. Dunlap, but the former had a peculiar attraction for him. He was a keen student of the heavens and always liked to share his knowledge with others. This project has been under consideration for the last five years and will now be brought to completion. In working out the plans Mrs. Dunlap has had the assistance of Professor C. A. Chant, head of the Department of Astronomy of the University of Toronto.

The outstanding feature of the observatory will be a large reflecting telescope seventy-four inches in diameter. There is only one of greater aperture in the world, namely that on Mount Wilson in California. The instrument was ordered some time ago from the firm of Sir Howard Grubb, Parsons and Co., Newcastle-on-Tyne, England. It will be housed in a circular metal building, such construction being best for this purpose. The observatory building will be a beautiful structure in the classic style. It will be erected on a suitable site near Toronto in the midst of a large acreage which will be converted into a park to be known as the David Dunlap Park.

When the observatory is completed it will be under the Department of Astronomy of the University of Toronto, while the park will be developed in a scientific way by the Faculty of Forestry.

The new institution will bring distinction to the University, the city, the province and indeed the whole dominion. It will be an enduring memorial to a worthy citizen.

Such was the public announcement of the David Dunlap Observatory as released to the press on Tuesday, December 30, 1930. Although the telescope had been ordered more than six months earlier, there had been a considerable delay while Chant and Young convinced Mrs. Dunlap not to relocate the observatory at some other site north of Richmond Hill. Hence also the vagueness of the announcement as to the observatory's location.

And now it was time to turn to details of the construction. Foremost was the question of whether the hill would provide sufficiently solid foundations for the massive telescope and dome.

As the excavation for the Dome would reach a depth of 25 feet it was desirable to find out the nature of the earth comprising this hill. So a local well-driller was engaged to sink a small hole, into which he continually poured water. He reported that all the way down it was the same as at the surface, which I judged to be a clayey loam. It was thought at first that the big pier might have to rest on a massive cement "float". But when the excavator who had the sub-contract had reached only a few feet down he found clay so hard and tough that he had to make use of a pneumatic drill, and he demanded extra pay. This clay, it was said, would be an excellent foundation for the pier.

The excavations for the foundation and for the mighty cement pier for the telescope began in March 1933; they were completed in three months.

The preliminary drawings for the dome and its circular building, made in England, had not been very attractive. As finally worked out there was a handsome portico, numerous pilasters, fourteen windows, and a well-designed gallery around the outside of the building near the top of the wall; and the completed structure presented a very pleasing appearance.

The contract for the fabrication of the Dome and Circular Building was signed on November 10, 1931, the contractor being the same as for the telescope, Sir Howard Grubb, Parsons & Co. It was loaded on the Steamship Havtor in England and brought directly to Toronto harbour, where it arrived July 31, 1933. From the dock it was taken by truck to the site and speedily erected by the Dominion Bridge Co. of Toronto. To attach the galvanized sheets to the wall, some 32,000 little bolts were used.

The telescope - all but the large mirror- was shipped from Newcastle by the steamer Cairnross. At Montreal it was transferred to freight cars which brought it to Toronto. Then it was carted to the site and erected by the Dominion Bridge Co.

As one piece of the telescope, the polar axis assembly, weighed over 16 tons, a special 20-ton crane was erected to handle it. The large crane raised the axis high in the air, passed it through the 15-foot slit of the dome and gently lowered it to the pier. The whole operation occupied less than an hour.

The main administration building of the Observatory was a very important matter. Dr. Young and I carefully considered what accommodation would be required in the building. On the ground floor would be various administrative offices, a lecture room, the library, as well as the central entrance. On the first story, more offices, measuring room, computing room, photographic and dark room, apparatus room, store room. In the basement, machine shop, carpenter shop, mirror-grinding room, clock room, heating plant and so on. The list was put in the architect's hands and he planned how to include them all. In the end we obtained a building which has been acclaimed by everyone as beautiful, appropriate, and effective. It is 91 feet long and 49 feet wide, with semi-octagonal projections at each end. It is constructed of Credit Valley limestone with trimmings of Queenston stone. The main entrance is finished in travertine.

The corner-stone of the Administration Building was laid on the afternoon of September 10, 1932. It was a beautiful day, cloudless and pleasantly warm. A rough platform had been put together beside the wall from contractor's planks,

and upon it were Mrs. Dunlap, President Cody of the University, Sir William Mulock (University Chancellor and Chief Justice of Ontario), Hon. G.S. Henry (Premier of the Province), and several others; while a large number of persons were gathered on the surrounding ground.

All the speakers referred to the magnificent gift by Mrs. Dunlap, not just to the University but to the whole of Canada. The stone was lowered to its place in the wall, and with a silver trowel, Mr. David Moffat Dunlap, son of the donor of the Observatory, assisted the stone to its final position, and declared it to be laid

TO THE GLORY OF GOD AND THE MEMORY OF MY FATHER.

J.D.F.