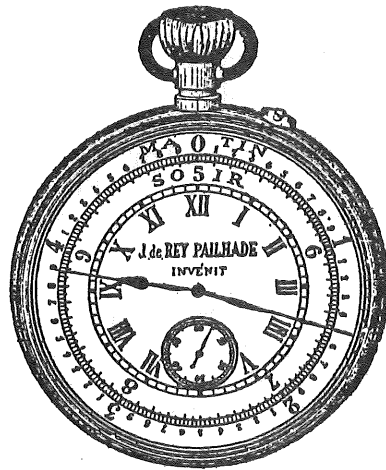


# DAVID DUNLAP DOINGS

VOL. 9, NO. 5

MAY 25, 1976



*A nineteenth century French watch that gave time in both conventional and metric units. See Final Item.*

THE NEXT ISSUE OF DDD WILL APPEAR  
IN JULY

## EDITORIAL

### The R.A.S.C.

I have been meaning for some time to write a piece about the R.A.S.C., recalling the excellent relations which have always existed between that Society and our Department and urging that we do all we can to maintain that relationship which has been so profitable to both organizations. Several recent developments seem to make the present an appropriate time for such ruminations.

It is hardly necessary to recall again in detail how C.A. Chant's career in astronomy was tied in with the development of the Society and the founding of both the Department of Astronomy and the Observatory. For 50 years Dr. Chant was Editor of both the Journal of the R.A.S.C. and the Observer's Handbook. During about 15 of these years the greater part of the editing was taken over by Dr. Frank Hogg as Assistant Editor and, after Frank's death in 1951, by Ruth Northcott who later became Editor upon Dr. Chant's death in 1956. In 1969 after Ruth's untimely death the Editor's job was split, the editing of the Handbook remaining within the U. of T. Department of Astronomy in the hands of John Percy, and the Journal passing to Ian Halliday of N.R.C. To both of these men the Society owes deep debts of gratitude for excellent results. The Handbook has improved year-by-year, and the revenue from its sales remains the Society's best hedge against inflation. The Journal has always had the difficult role of trying to satisfy both amateurs and professionals; in my opinion it has never done it better than during the past few years. (The institution of the National Newsletter has surely been greatly appreciated by all readers).

Ian Halliday had asked to be relieved in January 1976 of the Editor's job, and his colleague at N.R.C., Lloyd Higgs, has taken over. Lloyd's first two numbers of volume 70 offer the promise of maintaining the fine standard set by Ian. Though not every research paper is well suited to the Journal, Canadian professional astronomers owe it to the Journal and its Editor to offer papers which, by virtue of brevity or review nature, are so suited. It will be a sad day if the Journal even ceases to publish or so changes its character as to leave professional astronomers with no Canadian publication in our field.

In the past half-century the support we have offered to the R.A.S.C. has been repaid handsomely by what the Society has done for us. Directly traceable to the Society have been the magnificent gifts of the Dunlap family, Walter Helm and Carl Reinhardt. The list continues to grow: within the past few months a handsome bequest to the Frank Hogg Fellowship fund has been received from

the estate of the late Mr. Robert S. Evans, one-time president of the Victoria Centre, whose will benefited about equally the R.M. Petrie Fellowship Fund and the Hogg Fund. It will be ingratitude indeed if we professional astronomers do not continue to support the Society as, for example, Don Fernie, John Percy and Christine Clement are now doing as office-holders in the National Society or the Toronto Centre.

Almost exactly 20 years ago the Society with some trepidation embarked upon a financial venture of rather frightening magnitude when it used its total reserves of \$12,500 and committed itself to a \$20,000 mortgage to purchase 252 College Street for a "permanent home"; as the Journal of May-June 1956 put it. Two-fifty-two has been good to the Society, generating revenue to the extent of providing somewhat better than rent-free headquarters during the past 20 years. However, now the National Council, facing the need of drastic renovations to the property, has decided to sell 252. For somewhat less than half the earnings from the sale price the Society will rent a suite on the fourth floor of a modern office building which is nearing completion at 124 Merton Street, the third Street north of St. Clair near Yonge.

We wish the Society continued health and prosperity.

J.F.H.

#### OBSERVING

##### At Cerro Tololo

*Sidney van den Bergh in late April and early May had runs of five and seven nights respectively on the 1.5-m and the 4-m telescopes at CTIO in Chile. Only one night was lost to clouds. He and René Racine inaugurated the use of the Ritchey-Chrétien focus where they employed the new Racine lens to turn out photometric sequences to the 24th magnitude. Besides taking plate no. 1 at the R-C focus, Sidney also took plate no. 2000 at the prime focus.*

*As well as Sidney and René, other Canadian and ex-Canadian observers at CTIO at that time were Bill and Gretchen Hagen (Toronto/Yale), Pim FitzGerald (Waterloo) and Conrad Sturch (Western/Clemson).*

Canadian Ambassador Visits Las Campanas

On May 7-8 His Excellency André Potvin, Canadian Ambassador to Chile, and Mme Potvin and two of their children visited Las Campanas, being guests of CARSO for a banquet on the 7th and overnight guests at Casa Canadiense. Receiving them were Canadians René Racine, Bob Garrison and Dot Fraquelli (observers on the 24-inch), former U. of T. graduate student Peter Jackson (observing on the CARSO 40-inch) as well as Dr. Art Vaughan and Robert Poindexter of CARSO. Despite car trouble and a painful fall suffered by Mme Potvin en route, the Potvin family enjoyed their visit and put our observers completely at ease with their informal friendliness.

SvB Discovers new SN Remnant (Special to DDD)

On plates obtained earlier this month at the prime focus of the 4-m telescope of CTIO, Sidney van den Bergh has discovered delicate wisps of filamentary nebulosity about 10' NW of the centre of the radio position of the Lupus supernova of 1006 AD. (The object, which reached  $V \doteq -8$ , was the brightest supernova of recorded history.) Red and blue plates show that the nebulosity is equally bright in  $H\alpha$  and [OIII]. The overall length of the system of filaments, which lie entirely within the radio remnant, is about 9'. The thickness of the filaments ranges from about 1" to 8". The morphology of the filaments is intermediate between that of S147 and SN1572 (Tycho).

COMINGS AND GOINGS

Sidney van den Bergh spoke on "The Post-eruptive Galaxy NGC 5128 = Centaurus A" in La Serena, Chile, and gave a review on "The Supernova Remnant Cassiopeia A" at the Minkowski Memorial Symposium at Berkeley, California May 18.

Don MacRae was in the U.S.A. on April 28 attending the organization meeting of the Board of Trustees for 1976-77 of Universities Space Research Association at the Langley Research Center in Virginia.

Soon after returning from a ten-day observing session at Cerro Tololo and Las Campanas, René Racine attended a meeting of the Scientific Advisory Committee of the CFH telescope at the University of Hawaii May 14-22.

SEMINARS

MAY

*As announced with the addition of Dr. Barry Madore of Cambridge on "Cosmology Starts at Home" on Wednesday, May 12th at McL, and Dr. C.V. Vishveshwara, Department of Physics, University of Pittsburgh, on "Cosmology and Geometry" at Scarborough College, Tuesday, May 18.*

JUNE INSTITUTE JUNE 8-11.

PAPERS SUBMITTED IN MAY

S. van den Bergh	Clusters of Galaxies
E. Seaquist, & P.C. Gregory	A Model for the Quiescent Radio Emission from CYG X-3
M.H. Liller & H.S. Hogg	The Variable Stars in the Globular Clusters
Serge Pineault & R.C. Roeder	Applications of Geometrical Optics to the Kerr Metric. I. Analytical Results
Karl Kamper	Astrometric & Photometric Observations of Nearby Binary Stars
	HZ 43 as a Visual Binary

P O T P O U R R I

Tenures and Promotions

Tom Bolton and Peter Martin have both been granted tenure and promoted to Associate Professor as of July 1.

### Book Published

Early this month "The Stars Belong to Everyone" by Helen Hogg, has been published by Doubleday Canada Ltd. The book, being of a popular nature, was launched at a party given by the publishers at the cocktail hour on May 17th. Also a "Signing" party is to be held at Simpson's Queen Street store on June 5. In addition Helen was interviewed on May 12 by Betty Kennedy on CFRB and there are requests for other interviews. The book is beautifully done and is almost sure to have an excellent reception.

### Summer Assistants

The following students, all U. of T. undergraduates are working as summer research assistants for members of the staff noted: Jeff Clayton (Helen Hogg), Henry Nienhuis (Christine Clement), Richard McWatters (Jack Heard), John Palimaka (Ernie Seaquist), Stephen Morris (Tom Bolton), Douglas Gies (John Percy), Chris Rogers (Peter Martin).

### Telescope Mirror Designer Dies

Dr. G. McCauley, for many years a telescope mirror designer with Corning Glass works died recently at 93. Among the mirrors which he designed and for which he supervised the casting were our 74-inch and the Palomar 200-inch.

### Intra-Terrestrial Life

From a first-year Erindale student's essay read by Gerry Diamond:

"In our search for life in the universe we often look towards earth. Why is man fascinated by this little planet?"

Why indeed?

### Visitor

Dr. Andrew Odell from University of Northern Iowa is spending 6 weeks with us collaborating with John Percy and Tom Bolton on topics of Stellar Structure and Evolution.

## FINAL ITEM

### THE TIME INVENTORS. II.

Cartographers the world over were being driven into a frenzy before the nineteenth century was even three-quarters over. When, oh when, would the nations of the world get together and agree on a single prime meridian on which to base maps? True, for maritime purposes at least, many countries did in effect use the Greenwich meridian, simply because the British Nautical Almanac found widespread use and was based on the Greenwich meridian. But topographic maps - ! At one time or another there were prime meridians of Toledo, Cracow, Uraniborg, Copenhagen, Goes, Pisa, Augsburg, Rome, Ulm, Tübingen, Bologna, Rouen, Paris, St. Petersburg, Washington, and Philadelphia to mention only some. Supposedly, something was being done about it. There were frequent international congresses on the subject through the 1870's and early 1880's, but trying to get scientists with their mixtures of theoretical ideas and nationalistic enthusiasms to agree, proved a slow game indeed.

Meanwhile, in North America, the needs of the transcontinental railroads could not await the vagaries of international congresses. It was Charles F. Dowd, rejoicing in the title of Principal of Temple Grove Ladies Seminary in Saratoga Springs, N.Y., who seems to have been the first in 1869 to suggest that the continent be divided into time zones encompassing  $15^\circ$  of longitude, a size that would separate the zones by exactly one hour. Dowd initially suggested that these zones be based on the meridian of New York, but the details were argued over for some time, and the  $15^\circ$  suggestion had to compete against Cleveland Abbe's idea that the entire United States have only one time system, as well as against a French proposal that the world be divided into 144 time zones of only  $2.5^\circ$ . But New Yorkers no more fancied taking lunch at 8:00 a.m. than did San Franciscans breakfast at noon, and who wanted to change his watch every hundred miles or so? The  $15^\circ$  size seemed best, and was strongly championed during the 1870's by Sandford Fleming in Canada and Benjamin Pierce in the U.S. They also urged that the system be tied to maritime usage by making the zones integral hours behind Greenwich time. So it was that on April 11, 1883, both Canadian and American railroads agreed on the system of time zones as we have them today, and also at that time specified their names as Atlantic, Eastern, Central, Mountain, and Pacific standard times.

On the world scene Fleming's name is usually recognized for his urging that there be - at least for scientific purposes - one uniform 24-hour system of time based on Greenwich. It was an idea first proposed by John Herschel in 1828; he called it Equinoctial Time, Fleming called it Terrestrial Time, and today we know it as Universal Time. The astronomers didn't like it. "I set not the slightest value on the remarks extending through the early part of Mr. Fleming's paper [on Terrestrial Time]," said Sir George Airy, and "secondly, as to the need

of a Prime Meridian, no practical man ever wants such a thing. But, if a Prime Meridian were to be adopted, it must be that of Greenwich, for the navigation of almost the whole world depends on calculations founded on that of Greenwich. But I, as Superintendent of the Greenwich Observatory, entirely repudiate the idea of founding any claim on this. It has not been [our] custom to introduce novelties ..."

Airy's counterpart in the United States, Simon Newcomb, concurred: "A capital plan for use during the millenium. Too perfect for the present state of humanity. See no more reason for considering Europe in the matter than for considering the inhabitants of the planet Mars. No; we don't care for other nations, can't help them, and they can't help us."

But if astronomers could afford to be indifferent or chauvinistic over a prime meridian, more practical men could not. Successive congresses, especially one in Rome in 1882, were rapidly coming to the conclusion that the prime meridian should be that of Greenwich. The main stumbling block was a strong French counter-proposal that a 'neutral' meridian be selected, in particular one previously used by the French which passed through Ferro, a minute speck of an island near Madeira. This was countered by the argument that the prime meridian should pass through some major observatory for practical reasons. A compromise was suggested that would make the prime meridian what is now the International Date Line at longitude 180°; it itself would be neutral, but practical determinations would still rest with Greenwich. But eventually common sense prevailed; the British with their 40,000 ships exceeded the maritime tonnage of the rest of the world combined, and their charts were much more widely used than anyone else's. So, at a Washington congress in October of 1884, the Greenwich meridian was adopted as prime, the French rather graciously bowing out with the observation that since Britain would undoubtedly very soon adopt the French metric system, it was only fair that a British meridian be used. They had one last fling at trying to get the congress to recommend a decimal system of time, but this was judged to be "somewhat premature".

The same congress also adopted a world-wide system of time zones which were consistent with the North American scheme, although a previous suggestion that they be labelled with the letters of the alphabet was dropped.

The idea of Universal Time, as it had already come to be called, was also accepted, although this now brought another difficulty into focus. Again it was Fleming who pointed out that three different kinds of solar day were in use: the Civil Day, which began at midnight; the Astronomical Day, which began at the following noon; and the Nautical Day, which ended at the following noon. I have no idea what became of the Nautical Day, but Fleming, in numerous publications of the Royal Society of Canada and the (Royal) Canadian Institute, concentrated on reconciling the Civil and Astronomical Days. By the mid-1890's it was generally agreed that the Astronomical Day should be changed to begin at midnight like the Civil Day, but as usual everyone was overcome by inertia and for years nothing concrete was done about it. Only after the First World War, when apparently there had been some unpleasant confusion over times, was the system changed. On January 1, 1925, the Astronomical Day was changed to start at midnight, a change still reflected in our system of Julian Dates, where that wretched 0.5 day always crops up to retain consistency with the old Astronomical Day.

So that was Sandford Fleming: a tough Scottish railway engineer (you'll find much about that side of him in Pierre Berton's 'The National Dream' and 'The Last Spike') who also accomplished much on the international scene. And you newcomers to Canada - just don't go asking the natives who he was.