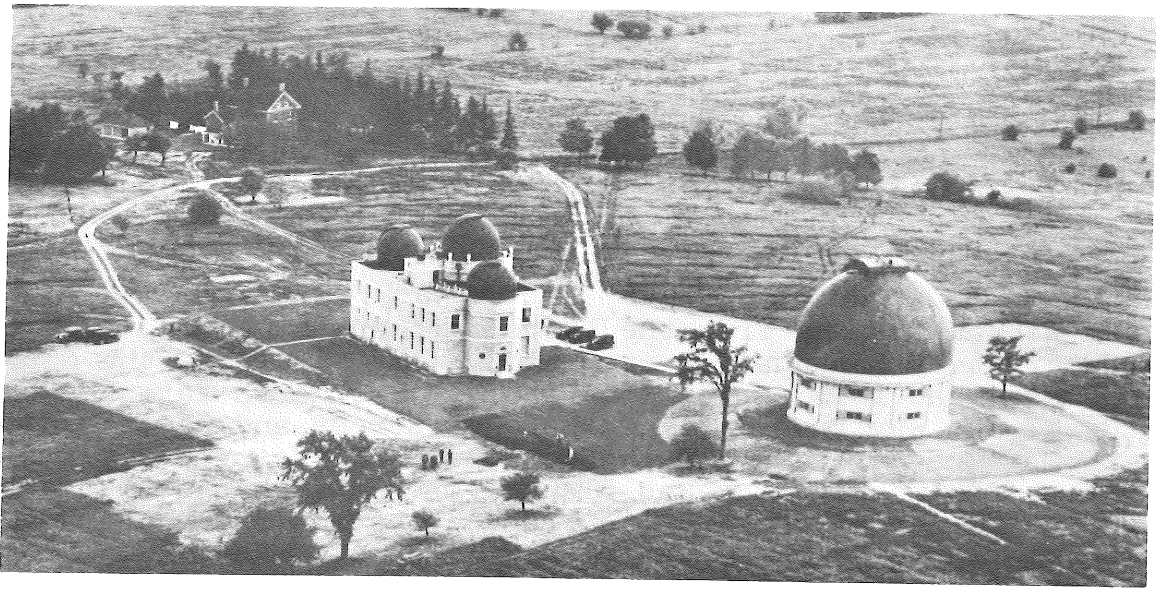


1975: 40TH ANNIVERSARY YEAR OF THE DDO.



## DAVID DUNLAP DOINGS

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*Upper: The Observatory and Observatory House in the summer of 1935 showing the lane to Yonge Street.*

*Lower: The staff and students in 1939. Front row: Ruth Northcott, Dr. Chant, Helen Hogg, Edna Fuller. Back row: Gerald Longworth, Andy Bunker, George Tidy, Dr. Young, Frank Hogg, Peter Millman, Jack Heard.*

EDITORIAL

Access to the Observatory, Then and Now

As you can see from the photograph on the cover, the access to the Observatory has changed over the years. In fact, the matter of the access road is a rather long story. The Marsh farm had originally extended all the way from Bayview to Yonge Street and was served by a lane from Yonge Street about in the middle of the property. Some years before the Observatory was planned Mr. Marsh had sold off the 50 acres between Yonge Street and the tracks to a man named Stevens who operated a dairy farm on the west side of Yonge Street, and a term of the sale was retention by Marsh of a permanent right-of-way over the original Marsh farm lane. When the University purchased the Marsh farm it automatically acquired this right of way, and as it turned out, for 30 years the Marsh farm lane, which came to be known as Observatory Lane, served as our access road, though this was not the original intention.

At first Mrs. Dunlap and Dr. Chant had visualized a broad tree-lined avenue extending due east from Yonge Street to the Administration Building, and to that end Dr. Chant was empowered to negotiate with Stevens for the purchase of his 50 acres. Chant first offered what he considered a high price, being 30 percent more than Stevens had paid. Stevens refused. Chant upped the offer to a figure representing a 63 percent profit, but Stevens again refused. At this point Dr. Chant, Mrs. Dunlap and the University authorities began to have doubts about the advisability, under any circumstances, of bringing our staff, students and visitors in perpetuity across the tracks on a University-owned private road; and Dr. Chant, in particular, began to think of an approach from one of the east-west roads. So when Stevens came back to say that the second offer was acceptable after all, Dr. Chant took some satisfaction in telling him that it was too late. Stevens was furious, and Miss Fuller, our Secretary of those days, never tired of recalling his bellows of rage as he left Dr. Chant's office.

Dr. Chant bided his time to acquire the necessary land for an approach from 16th Avenue, and it wasn't until 1950 that he was able to buy, at a favourable price, a 400-foot strip about a quarter of a mile long from 16th avenue to a point just to the south-east of Observatory House. He purchased this land himself, donated it to the University and directed in his will that part of his bequest to the Observatory be used for the building of a new access road.

Meanwhile Observatory Lane became less and less suitable as an approach to the Observatory. Stevens allowed the south side of the lane to develop into a hodge-podge of shacks and little open-storage industries. The property to the north of the lane he sold to (of all people!) the Mennen shaving soap company. I spoke several times to George Mennen who assured me that they were planning the most

beautiful factory in Canada to match their plant in Orange, New Jersey, which had won awards for landscaping. Nothing came of that, however. Perhaps it would have been better if it had; I read that the property is now about to be developed for high-density housing.

Frank Hogg and I, and later Don MacRae too, had reservations about Dr. Chant's preferred route from 16th avenue, so that as long as he was alive we didn't press for a change; neither, in fact, did he. Furthermore, until we knew how the road was to come in, we hesitated for some years to commit ourselves to a much needed parking lot to replace the cinder patch in front of the Administration Building and some landscaping to go with it. However, with a meeting of the A.A.S. in prospect for the fall of 1959, we felt that we had to act, so we designed the present parking lot and roadway to the Kepler's-law-of-areas oval, and had a landscaping company draw up a plan of plantings. This was all done in the summer of 1959 and in such a way that it would be compatible with the existing Observatory Lane or with any future change.

We continued to live for another six years with Observatory Lane. Finally, it was the coming of Harvey's and their hamburgers and chips and milkshakes that drove us to give up the lane before we would become knee-deep in garbage. By that time (the early 60's), however, we were beginning to be sensitive about light pollution, and the idea of a half-mile road (from 16th Avenue) packed with bumper-to-bumper cars with high-beam headlights aimed directly at the dome was something less than appealing. Instead, with the approval of Dr. Chant's executors and with a murmured prayer of apology to his spirit, we decided on the present road from Hillsvew, and it was built in the summer of 1964. Thanks to the way the road curves and to the growing little forest of spruce trees which we had planted in the mid-50's, this route has worked out very well.

In any event we have liberated ourselves from Harvey's garbage.

### The Staff in the Early Years

Neither in Dr. Chant's album nor in the "morgue" could we find a group photo of the staff in 1935. The best we could find was the 1939 group shown on this month's cover, which includes the 1935 originals plus two newcomers. Andy Bunker was one of the first, perhaps the first, graduate students who received an M.A. for research done on the 74-inch telescope; he was a likeable young American from one of the eastern colleges, and after leaving us he went into the meteorological service in the U.S. and we lost track of him. George Tidy was a research assistant from 1938 till 1940 when he joined the navy, was reported missing at sea, presumed dead, but turned up after the war (see DDD 3/11, 1970) and is now a government scientist in Ottawa. Another person who should have been in the picture is Shirley (Patterson) Jones who was a research assistant (computer, as we then said) along with Ruth Northcott in the early years.

## COMINGS AND GOINGS

Regular editor Jack Heard and wife Margaret are spending most of April on holiday in Britain.

Dr. Robert Smith of the University of Sussex has joined the Department as a visiting Professor for about five months. He will be working with Maurice Clement on problems of stellar rotation and allied topics.

Larry Morrill joined the Observatory staff on April 1 as electronics technician, assisting Tony Esteveus and Frank Hawker.

Bob Garrison spoke on "Interstellar Communication" at St. Andrews College, April 10; "Galactic Structure in the Southern Hemisphere" at UBC, April 15; "Peculiar Stars in the Southern Survey" at DAO, April 16; participated in the CFHT Spectrograph Working Group meeting at DAO, April 17-18; and spoke again on "Life on Other Worlds" at York Mills Collegiate, April 22. Cough drop, Bob?

Tricia Edwards has been back in the Department working for some weeks, but has left again to be married in England. DDD extends best wishes for a happy future over there.

Don MacRae attended a CFHT Board meeting in Ottawa, April 15-16, and a USRA Board meeting in Washington, April 17-18.

René Racine visited Lennoxville, Montreal, and Ottawa as a CAP Lecturer, speaking on "Recent Discoveries in Astrophysics" at Bishop's and Ottawa Universities, March 18 and 20, and on "Le Nouvel Observatoire Franco-Canadien à Hawaii" at the University of Montreal on March 19. He was also in Victoria for CFHT meetings the last week of April.

Sidney van den Bergh was observing at Cerro Tololo April 4-20.

Tom Bolton gave a talk on "Observational Evidence for Black Holes" at Waterloo April 11, and on "White Dwarfs, Neutron Stars, and Black Holes" at York Mills Collegiate on April 16.

Don Fernie was in England April 2-11, working in the RAS Library in London and attending the XIXth Herstmonceux Conference on Photometry, where he gave a paper.

Helen Hogg spoke to the Department of History of Medicine and Science at UWO on "An Account of the Development of Canadian Astronomy", March 19. She visited her Dunstable, Mass. home April 15-22, and was in Montreal for a Bell Company Board meeting on April 23.

Tony Esteveus returned April 2 from an extended stay at Las Campanas, where he was doing repair and replacement work on the 24-inch.

Phil Kronberg presented a paper on compact extragalactic radio sources at a mini-symposium at the University of Virginia in March. April 10-15 he was at NRAO to use their computer.

Christine Coutts left April 28 for another observing run at Las Campanas.

SEMINARS

April seminars were as listed in our March issue. None are scheduled for May.

PAPERS SUBMITTED

J. Percy	Light Pollution The Light Variations of HD 34626
J. Sorvari	A Rapid Filter Change Photometer
T. Bolton, J. Percy & R. Shemilt	Simultaneous Spectroscopic and Photometric Observations of the Beta Cephei Star HR 6684
J.P. Vallee	Magnetic Field in the Intergalactic Region
S. van den Bergh	Classification of Active Galaxies Classification of Normal Galaxies
B. Campbell, R. Garrison	Spectral Line Identification Studies of Some Stars with Helium Anomalies
P. Martin	A Semi-empirical Formula for Interstellar Birefringence
C. McAlary & J. Percy	A Periodogram Analysis of 4 Canum Venaticorum
W. Herbst et al	The 71-Second Variation of DQ Herculis

P O T P O U R R I

A usually reliable spokesman informs us (DDD tries to bring you the prose without the con, but we must be allowed an occasional bit of journalese) that the first piece of the CFH Telescope was shipped from France for Hawaii on April 18.

The Herzberg Institute of Astrophysics officially came into existence on April 1, with Jack Locke appointed as its first director.

Dave Turner will continue as a post-doctoral fellow at DDO with the award of a prestigious Connaught Fellowship.

Austin Gulliver, Chris Pritchett, and Serge Pineault have been awarded NRC post-doctoral fellowships.

Robert Roeder has agreed to serve on the National Organizing Committee that will plan the IAU General Assembly to be held in Canada in 1979.

John Percy and his committee are to be congratulated on their success in getting an excellent slate of speakers for the June Institute (June 10-13). They will be Mort Roberts, Carl Sagan, Martin Schwarzschild, and Clifford Will.

Ruta Caune announces that there is now available a computer print-out of all of the DDO Library's holdings, and that this will be up-dated every six months. It is hoped that this will serve not only to make outside institutions aware of our extensive facilities, but also to encourage downtown staff and students to make better use of the library.

Phil Kronberg has been appointed to the NRC Grants Selection Committee for Astronomy and Space Science for three years beginning in 1975.

#### CUASI TERREMOTO EN SERENA

*So proclaimed the La Segunda headlines in red 53 mm type on the night I arrived in Santiago. Northern hemisphere newspapers would have been much less restrained. The earthquake cracked the plaster in my room in Sheraton Christobal in Santiago and was strong enough to tumble walls and collapse roofs in La Serena. I was told that a consequence of the earthquake was a monumental traffic jam as everyone jumped in a car and raced home or to the school. No discernible damage was done on Las Campanas - if it affected the polar axis on our telescope it was to move it into better alignment.*

*I had 8 3/4 clear nights out of 10, each a good 10 hours long. Tony Esteveens had just installed the new variable frequency oscillator. It made spectrographic observing satisfyingly efficient and produced spectra of uniformly good quality. Seeing was 1 1/2 seconds with the star all but disappearing on the slit (the atmospheric dispersion, fortunately, gives a yellow image to guide on to one side or the other of the 1" slit, even when the star is close to the zenith).*

*The Irénée du Pont Telescope is awaiting its mirror at the far end of the ridge, not close enough to our dome to dwarf it in any way.*

Canada House is something we can be very proud of, in lay-out, construction, architectural style and furnishings. Daryl has become an energetic and accomplished (indoor) horticulturalist, beside doing a great job of looking after all our equipment down there. Truly, everyone up here ought to have the experience of an observing session down there. Speak, or write, to rG.

MR

## F I N A L I T E M

### The Great Automated Comet-hunting Machine

Comets, to be quite candid, don't really turn me on. Or, at least, they haven't so far. Every few years, when the comet of the century comes by, I rush out like everyone else and boggle through my binoculars, and yet, even in those cases where I've actually succeeded in finding the comet, little more than ennui overcomes me. Furthermore, although I hate to confess the depths to which I've sunk, I'm not even troubled by my lack of enthusiasm. I can await 1986 and the return of Halley's Comet with scarcely a tremor of anticipation. All of which may be indicative of severe psychological disturbance, for the literature clearly indicates that the rest of mankind has always regarded comets as a pretty big thing. Perhaps I'm in the plight remarked on by Rudyard Kipling in his famous poem: "If you can keep your head while all about you are losing theirs, maybe you just don't understand the situation." Or something like that.

Anyway, as any long-suffering A100 instructor could tell you, some of us at least had recently to face up to what the Children of God had to say on the subject of Comet Kohoutek, and that, you will recall, was pretty hot stuff. But only the latest in a very long line of such exhortations.

The superstitious have always got pretty worked up about comets. A character by the name of Ambroise Paré in the early 1500s was recording for posterity:

*This comet was so horrible and so frightful and it produced such great terror in the vulgar that some died of fear and others fell sick. It appeared to be of excessive length and was the colour of blood. At the summit of it was seen the figure of a bent arm, holding in its hand a great sword, as if about to strike. On both sides of the rays of this comet were seen a great number of axes, knives and blood coloured swords among which were a great number of hideous human faces with beards and bristling hair.*

Halley's Comet has always been a bit of a beast too. You recall what happened when it was around in 1066, later causing first Milton ("That fires the length of Ophiuchus huge.... and from his horrid hair shakes pestilence and war") and then Tennyson ("You grimly-glaring, treble-brandished scourge of England...") some upset - not to mention poor old Harald himself. It was back again in 1456 when the Moslems were hammering on the gates of Christendom at Constantinople. On that occasion, an apocryphal story has it, Pope Calixtus III, in a masterly stroke of tactics, excommunicated the comet, but the ploy unaccountably failed.

On the other hand, Halley himself couldn't complain about the luck his comet brought him. Back in 1691, before he'd really got to work on the comet, he applied for the Savilian Chair of Astronomy at Oxford, and was turned down because crusty old John Flamsteed dismissed him as "a drunken sea-captain". It's true that Halley, in his sea-faring days, had at least picked up a degree of quarter-deck language. But then in 1701 he really got down to the comet, and lo, in 1704, was appointed Professor of Geometry at Oxford.

Also on the beneficent side, I've always been rather charmed by the story that all French vintners naturally attributed the magnificent claret of 1858 to the appearance of Donati's Comet. This because the great comet of 1811 had done so well for both claret and port.

But it is the views of scientists that make the best reading. In the eighteenth century the great French scientist Buffon attributed the formation of the entire solar system to a passing comet. Less extravagantly, but more precisely, William Whiston, who succeeded Newton in the Lucasian Chair of Mathematics at Cambridge, worked out the entire history of the earth based on three comets. The first comet became the earth itself. The second, in a close encounter, imparted life to the earth, allowing the development of a magnificent paradise. But then came impure man, necessitating the sending by God of a third comet "to inflict an awful punishment on man for his sins". Whiston relished the details: "On Friday 28 November 2349 BC... the comet was situated at its node... from which our globe was separated by a distance of only 3614 leagues.... The conjunction took place at the hour of noon under the meridian of Pekin, where Noah, it appears, was dwelling before the flood." When the comet's tail struck the earth's atmosphere the Deluge began ("thus were opened up the cataracts of heaven"), causing a flood "six English miles deep" which swept away the guilty "in a glorious religious purge". Velikovsky got it down a little differently.

The French have usually taken a more cheerful view of things than puritanical Englishmen like the Rev. Whiston. The great Maupertuis considered comets to be "peopled by a certain race of men" and cometary tails to contain a real "dazzling train of jewells". In 1742 he wrote that if only we could collide with a comet "Earth would enjoy rare treasures.... We should be much surprised to find that the remains of these bodies we despise are formed of gold or diamonds." He was right; we should be much surprised.

Well, anyway, you can see how important it is to know about comets. So, skipping about 999 other such stories, let's get back to modern times and take a look at E.E. Barnard's fabulous automated comet-hunting machine. E.E., then a staff-member at Lick, didn't know about it himself until he read the details in the *San Francisco Examiner* of March 8, 1891:

*DISCOVERS COMETS ALL BY ITSELF*

*A wonderful Scientific Invention that will do away with the Astronomers' Weary Hours of Sweeping -- It's Just Like Gunning for Wandering Stars with a Telescope.*



Flabbergasted, Barnard read on to where he was supposedly quoted verbatim:

*... "Mark now the effect!" cried Barnard, almost rapturously: "When the Moon goes down I will start the telescope 'sweeping'. I can then leave my comet-seeker to its own intelligent work, and give my attention to stellar photography and other important matters. Throughout the night my human telescope explores the skies, stars, nebulae, and clusters innumerable crowd into the field with every advance of the clock, but the telescope gives no sign of their presence, for the analyzing prism spreads out the light of even the brightest among them throughout the length and breadth of the spectrum, and when this spectrum falls on the three slits of the diaphragm its light is far too feeble to exercise any electrical effect upon the selenium!"*

*"But let even the faintest comet come into range and see what are the consequences! The prism instantly analyses the light, the bright hydrocarbon bands fall upon their respective slits. The light of these, reaching the strip of selenium, so changes the electrical resistance as to disturb the balance of the Wheatstone bridge, and a feeble current is sent through the wire. This in turn closes all the circuits of the powerful Leclanche battery, and the comet is caught, as in a trap."*

*"An alarm-bell rings in my bedroom down at the cottage. Of course, the signal quickly summons me to the roof. A single glance should suffice to reveal the position of the newcomer."*

*"Have I tested my invention? Certainly, or I should not speak so confidently. You remember reading the comet discovered by Professor Zona, at Palermo, November 15th of last year? Well, this comet was fairly bright at discovery, but, last month, when my machine was just completed, it had become sufficiently faint to be a most severe test. One night, when the conditions were favorable, I started the finder several degrees from the comet's position, and allowed it to sweep back and forth in the heavens. Sure enough, the distant body - barely visible to the naked eye through the same object glass - was instantly detected, and my experiment proved a complete success."*

*"You may be sure that I feel pleased: not so much for the honor of the thing (which we all share), but at the immense saving of valuable astronomical time."*

*By this time I had been so impressed with the grandeur of this invention perfected by these modest workers in astronomical science that I felt impelled to decline their generous offer of further entertainment, and, full of the subject, returned to San Jose with their entire permission to make the facts known to the public. I am happy to be allowed the honor of communicating to the world this brief sketch of the new invention, which will revolutionize at least one branch of astronomical investigation."*

(signed) Collis H. Burton

Barnard, of course, leapt for paper and pen and wrote a white-hot denial to the *Examiner*. That was when the second surprise came. The hoaxer had forewarned the paper that Barnard, in his modesty, would deny the story, and that the editor should ignore all protestations of innocence. Poor Barnard, in the absence of denials he was deluged for years by inquiries from around the world by people wanting to build themselves such machines. He could see, of course, that the story must be the work of more than just a newspaperman, and after the *Examiner* published an apology on February 5, 1893, it was revealed to have originated with a junior assistant at Lick, Charles Hill. There was a strong suspicion, though, that Jim Keeler, soon to be director at Lick, had been behind it. Later, when life at Lick became even more neurotic, E.E. was happy to accept Hale's invitation to join the new Yerkes Observatory half a continent away.

Barnard, however, should not have minded all that much, for he was one of the very few who have ever made significant financial gains out of comets. He himself related how in 1880 a certain wealthy Mr. Warner offered \$200 for every unexpected comet discovered by an American or Canadian. The first time E.E. won this prize, he and his wife decided to use it as a downpayment on a house. Every time the mortgage fell due they lived in fear and dread as to where they'd find the next payment, but everytime E.E. succeeded in finding another comet. Eventually, says Barnard, "it finally came about that the house was built entirely of comets. This fact goes to prove the great error of those scientific men who figure out that a comet is but a flimsy affair after all, infinitely more rare than the breath of the morning air, for here was a house, albeit a small one, built entirely out of them. True, it took several good-sized comets to do it, but it was done nevertheless."

Thinking it over, maybe I should revise my ideas on comets after all.

J.D.F.