

What to do if the Sun goes out

The world will not, despite Midwint-ers, end next Monday; the ancients, however, would have been praying for the return of their lives if they saw the sun begin to disappear as it will here on February 26.

Starting about an hour after sunrise, the moon will begin to block the sun, culminating in a 93% eclipse. Despite missing totality, Edmontonians will have their last opportunity to view a local eclipse until 2044 AD.

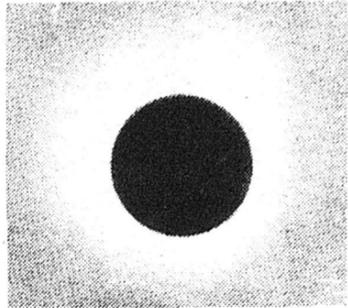
Eclipse watching has been an important activity since prehistoric times. Stonehenge, among its other attributes, can be used to predict eclipses. The ancient Chinese perfected a method of predicting eclipses in 2000 BC; the same method can be used accurately today.

Eclipses have also played an interesting part in literature. Samuel Clemens, in *A Connecticut Yankee in King Arthur's Court*, used an eclipse to save his hero's life and have him made court Magician. The most powerful magic spell had to be uttered by the hero in order to lift the eclipse from the sun; the words were "Saskatoon, Saskatchewan!" In this century, Isaac Asimov used the idea of an eclipse causing the total downfall of civilization.

In viewing this eclipse, a few precautions and some preparation before the event will allow safe and clear viewing, if weather permits. According to climatological data for Feb. 26, Edmonton stands a 67% of complete cloud cover, an 18% chance of partial cloud and only a 15% chance for clear viewing. On top of that, there's a possibility that ground fog may obscure the eclipse, as it will occur low in the south-eastern sky.

To view the eclipse directly, use only a #14 (or higher) welding glass. If #14 is sold out, buy two plates of #8 or higher, and sandwich them to keep both in front of your eyes. For viewing through a telescope, either block the

front end (not the eyepiece end) with #14 or equivalent welding glass or use a viewing screen of white paper attached so that the image may be focused on the paper. Binoculars may be used in a similar manner to a telescope.



Another way of watching the eclipse is by constructing a "pinhole camera." Take a large cardboard box; open the top. Cut a hole about two inches square near the bottom of one end. Cover the hole with aluminum foil, and use a pin to make a hole in the foil. At the opposite end of the box, cover the inside of the box with a sheet of white paper. To use the box, place it upside down over your head and face the paper. Your back should be toward the sun. If you have been reasonably careful, there will appear on the paper a small but bright image of the sun. Do not look through the pinhole at the sun.

Photographers with 35 mm cameras will probably get their best results by using a 300 mm to 500 mm telephoto lens with a #14 welding glass in front of the lens. The glass has a green tint which will affect color films; the color can, however, be removed by the film lab in processing, if you tell them to adjust for it.

Do not allow the lens to aim at the sun without a #14 or better glass; to do so could cause the sun to burn through the camera's shutter screen, and could irreparably damage your eye if you looked through the viewfinder.

Black and white film may give more useful results than color, if the loss of color is not important to you. Films suggested include Kodachrome 25 and 64, Fujichrome 100, Ektachrome 64 and black and white films 125 ASA and under. With most lenses, this will result in a reasonable range of available f-stops and shutter speeds. One thing to ensure useful photographs: bracket exposures at least two f-stops, by half stops, in each direction from the values given.

For lens size, the sun will create an image about 1 mm in diameter for each 100 mm's of lens length, setting the lower limit of lens length at about 200 mm. However, above 600 mm, the poor optical quality of the welder's glass will begin to cause problems.

One final note: do not use the following items, as all are dangerous for various reasons: neutral density filters, exposed film "sandwiches", smoked glass or sunglasses. Also do not use any filter at the viewing end of binoculars.

The table below is calculated exposure for most cameras and films in a partial eclipse. Remember, since exposure may change rapidly during the eclipse, bracket exposures by half stops, at least two stops each direction. All values are with #14 welding glass.

	ASA	25	64	100	200	400
f/4	1/125	1/250	1/500	1/1000	1/2000	
f/5.6	1/60	1/125	1/250	1/500	1/1000	
f/8	1/30	1/60	1/125	1/250	1/500	
f/11	1/15	1/30	1/60	1/125	1/250	
f/16	1/8	1/15	1/30	1/60	1/125	
f/22	1/4	1/8	1/15	1/30	1/60	
f/32	1/2	1/4	1/8	1/15	1/30	
f/45	1	1/2	1/4	1/8	1/15	

exposure time in seconds

telescopes or cameras. Filters must be placed to filter the light before it enters the optics.

The sun will rise on Monday at 7:32. The moon will first make contact with the sun at 8:29; the eclipse will reach 93% coverage at 9:35, and the moon will leave the sun at 10:45. This eclipse will be particularly interesting because it is occurring near the peak of the sunspot activity cycle. While the sun is partially covered, sunspot activity should be visible.

The university's observatory, equipped with a twelve inch reflector telescope, will be open to the public on Monday. A reflector viewing system should allow for the production of an image several inches in diameter and highly detailed.

For more information on the eclipse, its effects and how to view it, phone the Queen Elizabeth Planetarium at 455-0119; call the Physics department for information on viewing the eclipse at the university observatory.

Thanks are due to Dr. D. P. Hube of the Physics department and to the booklet *Eclipse '79*, by the staff of the Queen Elizabeth Planetarium, for their help and information.

Cutbacks hurting across Canada

OTTAWA (CUP) — Continued reductions in government spending to post-secondary education means students are having to endure slashed library services, and overcrowded and unsafe classroom facilities. In an effort to economize in the face of steadily decreasing government support, the University of Toronto may have to dismantle the faculty of education's library, according to the U of T's dean of education. According to professor Walter London, the pros and

cons of such an action are being investigated by the faculty. If the library is dismantled, its books will be divided between two of the U of T's libraries.

Several students interviewed by the U of T student paper *The Varsity* indicated that such a move would prove to be a major inconvenience and hindrance to their studies.

At Trent University in Peterborough, the library services committee recently outlined the effects budgetary cutbacks were having on acquisitions. According to a committee

report, the rising cost of periodicals, up as much as 35% in the last year, now takes up 80 per cent of the science department's budget.

As a result, the library has had to cut back on the number of book allocations.

Memorial University in St. John's is suffering an acute space problem due to a sporadic and insufficient capital spending by the provincial government, according to T.C. Noel, head of the university's planning department. Many departments have

been housed in temporary buildings for years, and unless Memorial is given the funds they will remain in these inadequate and overcrowded structures for years to come, Noel said.

Arts students at the University of Saskatchewan, who have also put up with an inadequate 'temporary' structure for the last 32 years, find themselves exposed to a variety of health hazards.

U of S ceramics students work in an army surplus structure that was supposed to be replaced five years after it was bought in 1947, according to Jim Thornsby, the only professor still teaching there.

"There are sections of the floor I tell people not to walk on because if they do they will fall through," Thornsby said. "Because there is no ventilation system students are working in air that is full of toxic substances that are used in glazes, including lead."

Thornsby also called the building an "incredible fire trap."

The Manitoba government's decision to give universities a six per cent increase in funding will "gravely impair (the University of Manitoba's) ability to provide the type of education we hope to provide to students," predicted the U of M's dean of arts.

The University had asked for 11.7 per cent.

According to Dean Fred Stambrook eight full-time academic positions, three support staff, several teaching assistants and various supplies would have to be cut.

NAWL conference in Calgary

Women and property is the theme of the Third Biennial Conference of the National Association of Women and the Law (NAWL), to be held February 22 to 25 at the Palliser Hotel.

Organized by the Calgary caucus of the NAWL with assistance from The University of Calgary faculties of law and continuing education, the conference is aimed at informing NAWL members, as well as the general public, about legal matters of particular significance to women and to provide a national forum for discussion of these matters.

This year's conference will feature a panel discussion and workshops on matrimonial property law as well as discussion groups dealing with proper-

ty in a broad sense, encompassing a number of business and financial matters of particular concern to Canadian women.

Although not directly related to the main theme of the conference, the proposed

amendments to the Criminal Code with respect to sexual assault offences will also be discussed so that NAWL members can formulate recommendations to the federal government.

Teaching workshop

The Faculty of Engineering is sponsoring a one-day workshop for "Designing and Managing Motivation in Instruction." The workshop, to be held on Thursday, March 1, 1979, will be led by Dr. Gordon Flammer, a civil engineering professor at Utah State University.

Dr. Flammer has been active in Effective Teaching

workshops in Canada and the United States for fifteen years. He was the principal director of such a workshop in Calgary in 1977 and at the University of British Columbia last year. Dr. Flammer has published articles on instructional design, motivation, and self-paced mastery level instruction.

Participants in the workshop include professors from several Faculties.

Sports Quiz

ANSWERS

- (a) Sir Barton won in 1919. Man O'War did not race in the Kentucky Derby because his trainer thought that it was too early in the season, but the horse did win the Preakness and the Belmont.
- Kentucky Derby - Churchill Downs, Louisville, Kentucky, 1 1/4 miles.
Preakness - Pimlico, Baltimore, Maryland, 1 3/16 miles.
Belmont Stakes - Belmont Park, Belmont, New York, 1 1/2 miles.
- (i) Masters, U.S. Open, British Open, P.G.A. Tournament (ii) England (Wimbledon), U.S., Australia, France
- (c) Broda had 13 shutouts recorded during 13 playoff series.
- Don Newcombe of the Brooklyn Dodgers.
- Mark Tardif passed Bobby Hull in the past week. Hull retired with 303 WHA goals.
- Bucyk (556 goals), Richard (544), Frank Mahovlich (533), Stan Mikita (520 as of the beginning of the season), Beliveau (507)
- (a) Peter Lee (b) Bobby Smith (c) Jack Valiquette (d) Ron Sedlbauer (e) Bill Barber
- (d) and (e) Barber and MacLeish each have 5 short-handed goals. As a team, Philadelphia has 13.
- Most hits: George Sisler - 257 for St. Louis AL in 1920. Most grand slams: Ernie Banks - 5 for Chicago NL in 1955, and Jim Gentile - 5 for Baltimore in 1961.