

U OF T ASTRONOMER FILMS SUPERNOVA

A supernova of remarkable brilliance, which recently appeared in the southern sky, heralding the massive explosion of a single star in a nearby galaxy, has been photographed by Derrick Salmon, an astronomer with the University of Toronto's telescope at Las Campanas, Chile. He was one of the first scientists to film the supernova after it had been noticed on patrol photographs taken in May at Mount Palomar, California.



In the above photograph, the supernova is the bright star below the centre of the picture. Above is the galaxy to which it belongs, at an estimated distance from Earth of seven million light years. The star outshines the galaxy, which contains millions of ordinary stars.

In coming weeks, this supernova, caught here at its maximum brilliance, will fade into obscurity. Massive clouds of gas, ejected outwards from the star at thousands of miles a second, will dissipate themselves in space. Meanwhile the star will readjust itself in some way to its new reduced mass, and may end up hundreds of years later as a remote counterpart to the famous Crab Nebula in our own galaxy, which was a supernova in A.D. 1054.

Dr. Donald MacRae, chairman of the University of Toronto Department of Astronomy, remarks that not only is this supernova a particularly energetic one but its galaxy, which is of the dwarf variety known as NGC5253, produced an equally bright supernova only 77 years ago - a remarkably short interval between such events, particularly for such a small galaxy.

Supernovae, explains Dr. MacRae, are exploding stars, presumably in the last stages of their journey to the stellar graveyard. In this cataclysmic process, they suddenly eject a great deal of their material

with unbelievably large velocities up to 3,000 miles a second. It is this outward moving material which makes the star appear more than one million times brighter than it was beforehand. The brightness increases to a maximum in a matter of a few days and then more slowly decreases over a period of a few months, until the star fades into obscurity.

GREEN LIGHT FOR MACKENZIE HIGHWAY

Northern Affairs Minister Jean Chrétien recently announced that the first tenders had been called for construction of the initial phase of the Mackenzie Valley Highway north of Fort Simpson in the Northwest Territories.

The Minister said that this 49-mile stretch of road to Camsell Bend, NWT, was the first stage of the highway to Inuvik promised earlier this year by the Prime Minister.

When he announced the call for tenders, Mr. Chrétien also made public a set of rules that road contractors must adhere to as a protection of the northern environment. One of these is that Indian Affairs and Northern Development land-use inspectors shall oversee the operation.

All contracts governing highway construction require that local native people be hired for all positions for which they are qualified and that, if available, at least 25 per cent of all equipment used be rented from companies established north of the 60th Parallel.

Starting next year, as a training project, the territorial government will construct ten miles of the highway north of Camsell Bend. Instructors, students and equipment from the Adult Vocational Training Centre, Fort Smith, will set up camp on their section of the road next summer and the students will use the skills they acquire to build an actual road. The Federal Department of Indian Affairs and Northern Development is financing the training project.

This winter, as an innovation in highway travel, the Federal Government will test a cable-operated, air-cushioned transporter as a vehicle for ferrying traffic over major river crossings. If the test is successful, the use of these vehicles as ferries could make the highway operable for all but about five days annually. The prototype is the offshore vehicle that underwent trials at Yellowknife last winter.

ENVIRONMENT PROTECTION RULES

Specific concerns in the development of the Mackenzie Highway are:

- (1) that it be developed in accordance with engineering practice, with a minimum of environmental damage and with a view to enhancing the inherent landscape values;
- (2) that the construction will avoid or minimize adverse effects to the surrounding terrain and vegetation;