

Space 'black hole' discovered

A black hole — the second largest stellar black hole ever detected — has been found in a neighbouring galaxy by two Canadian scientists from Canada's National Research Council and an American colleague.

David Crampton and John Hutchins of the NRC's Dominion Astrophysical Laboratory in Victoria, British Columbia, and University of Michigan researcher Anne Cowley found the invisible object in late November while observing its companion star in the Large Magellanic Cloud, a neighbouring galaxy to the Milky Way.

The hole, named LMC X-3, is thought to be a collection of material whose density and gravity are so great that it sucks in objects like a vacuum. The first stellar object believed to be a black hole was found in 1974 in the constellation Cygnus in the Milky Way.

Black holes are believed to be formed when giant stars burn out and collapse in on themselves. Their molecules become packed so tightly that one teaspoonful would weigh as much as the Earth. This creates gravity so strong even light cannot escape. Thus, black holes cannot be seen with the tools available to astronomers.

New means to reduce sulphur dioxide emissions

The amount of sulphur dioxide released into the atmosphere by Inco Ltd.'s operations in the Sudbury, Ontario area could be cut by half, says a federal-provincial study group.

In a report tabled in the Ontario legislature last month by Environment Minister Keith Norton, the group says a combination of new smelting equipment and pollution-reduction devices could reduce the emissions to low levels.

Inco has been identified as North America's largest single source of sulphur dioxide emissions which react chemically with moisture in the atmosphere and eventually fall as acid rain or snow, often thousands of kilometres from the source.

The study group was set up by the Ontario government to show what technology exists for the reduction of the emissions and what its impact would be on Inco and Falconbridge Nickel Mines Ltd., employment and the environment.

Spokesmen for the two companies say they are working on new techniques to reduce the pollution and plan to make

announcements next year.

Before starting its present shutdown, which is to last until April, Inco was releasing sulphur dioxide into the atmosphere at a rate of 2 300 tonnes a day. The company had been ordered by the province to reduce those emissions to about 1 800 tonnes a day by January 1. However, to achieve such a reduction would cost at least \$500 million and Stuart Warner, Inco's vice-president for

environment and occupational health, said the company would be hard-pressed to find anyone willing to lend that amount of money while nickel markets are still severely depressed.

The study group, made up of federal, provincial and private environment experts, says the cost could be offset to some extent by reduced maintenance and energy costs and a reduction in operating staff.

Biotechnology firm finds industrial uses for microbes

Allelix Incorporated is completing construction of a \$20-million laboratory in Mississauga, Ontario where researchers will develop microbes for use in the fields of oil exploration, mining and farming.

"It's very exciting," said company president Alan Bates. "We're treading new ground here with real rewards for people who innovate and develop products with significant economic impact."

Allelix, a partnership of John Labatt Limited, the Canada Development Corporation and the Ontario government, will explore ways that biotechnology (the science of harnessing microorganisms and plant cells for specific commercial applications) can be applied to Canada's resource and agricultural sectors.

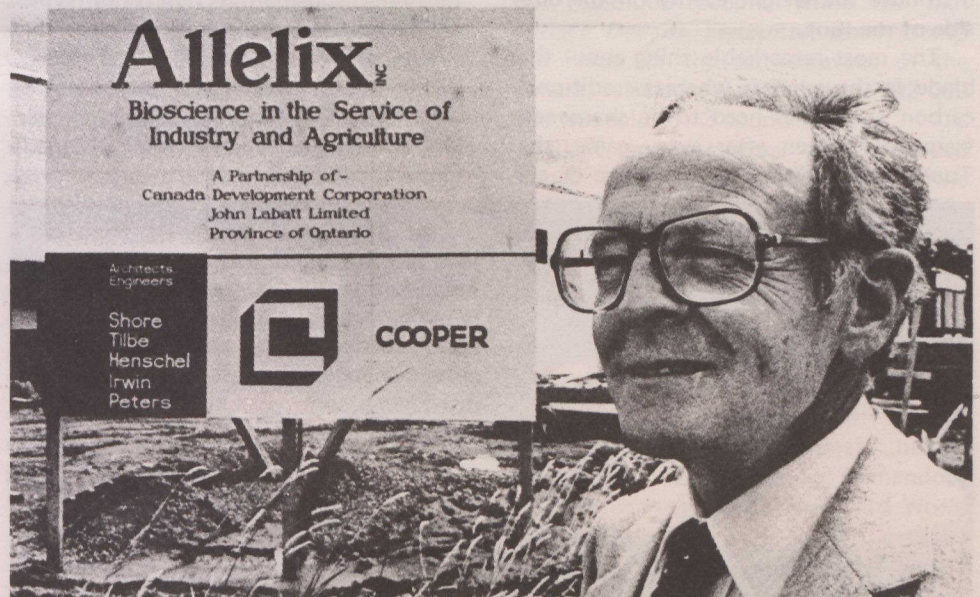
A number of projects have already been planned for the new research facility. One will examine ways in which oil companies can recover hard to reach deposits by using microbes to alter the properties of the oil making it easier to retrieve. In the area of mining, Allelix will investigate

certain bacteria that can be used to recover minerals from low-grade ore and mine tailings. The company is also considering ways to improve crop yields by introducing nitrogen fixation to certain agricultural crops.

While most major industrialized countries are involved in some areas of biotechnological research, Allelix is one of only a handful of Canadian companies in this field. Research at the Allelix laboratory is expected to stimulate the Canadian economy and to find international markets. The laboratory with its unique products and processes will also lead to employment for highly skilled Canadian workers.

"Ultimately we hope to play a significant role in improving the productivity and competitiveness of Canada's primary industrial sectors," said Mr. Bates. Allelix is beginning a world-wide search for 120 scientists and support staff needed for the research facility.

(Excerpts of an article from Ontario Business News, September 1982.)



President of Allelix Allan Bates surveys the new biotechnology facility in Mississauga.