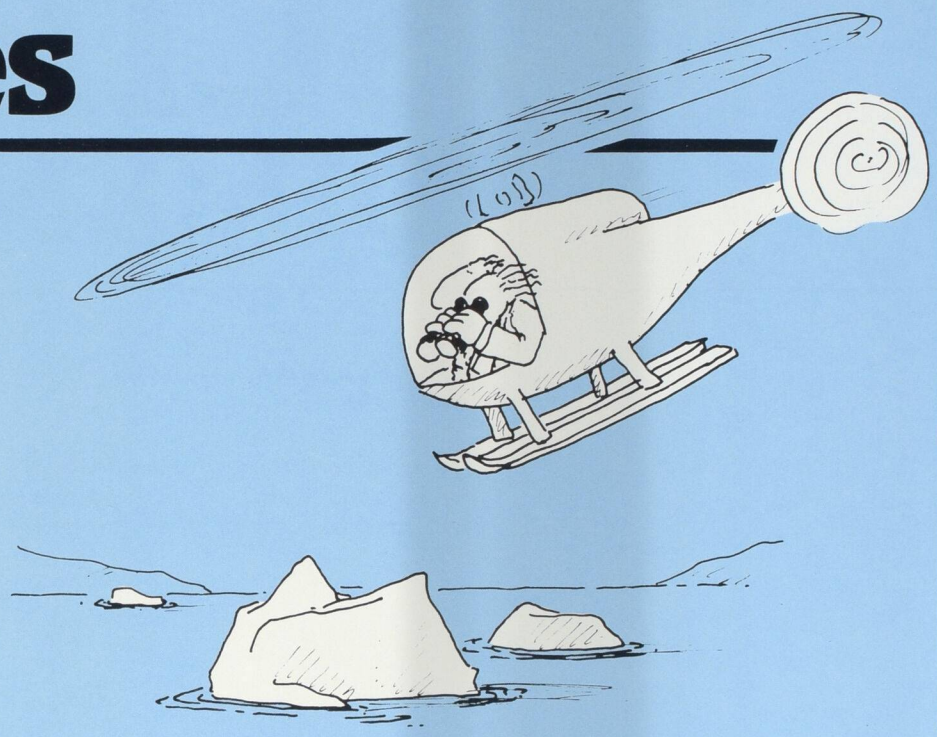
Capsules

Five Megatonnes

Scientists in Newfoundland are starting to outguess icebergs. It's a useful talent if Canada hopes to exploit its northern oceans for their undersea oil.

Evidently, the problems of exploring for cold-ocean oil are immense. As the *Ocean Ranger* disaster testified, one major peril is the weather. Another, perhaps even greater, is ice. In the Hibernia oilfield, the problem is not so much pack ice (frozen seawater) as icebergs. An iceberg usually 'calves' along the coast of Greenland; after months or years, it sometimes finds its way south and becomes a hazard. Some of these random visitors weigh more than five million tonnes — about 10 000 000 000 pounds. They may owe their origin to snow laid down before the birth of Christ, chilled and squeezed till it is hard as steel. One such monster may have sunk the *Titanic*; although the force that caused that sinking came from the ship's own speed, a large iceberg borne even at 30 cm/s by wind and current could crumple a moored structure like a drill rig as if it were paper. The only solution: get out of the way!



However, pulling up stakes and moving a working drill platform is not only risky but expensive . . . an operation you'd hate to perform unnecessarily. It would help to be able to predict a nearby iceberg's immediate course and see what the chances of collision were. This is exactly what scientists at Nordco, a firm based in St. John's, Newfoundland, are beginning to do.

Nordco, which concentrates on ice research, uses tracking systems on ships and aircraft to detect iceberg movements, which are then relayed to computers aboard the drill rig and analyzed by special algorithms, or procedures of formal logic. The goal is to forecast future ice movement over the short term.

Results? Though still at an early stage, the Nordco project's new software has successfully integrated data on currents, winds, and recent courses to predict the small-scale movements of some actual icebergs in the North Atlantic and the Labrador Sea.

(Watch for the complete story in a future issue of *Science Dimension*)

Wiggle, wiggle, little star

Infrared energy from a nearby star indicates the probable existence of a planetary system other than our own. Vega, a bright star only 26 light years distant (our Galaxy is about 100 000 light years across), is surrounded by a dense shroud of fragments — some of which may already have become planets. The discovery was made by a new scientific instrument, the Infrared Astronomy Satellite (IRAS), launched last January and operated by researchers from the Netherlands, the United Kingdom, and the United States.

More than twice the sun's size and many times brighter, Vega is supposed to be only a quarter of the sun's age. More than four billion years ago, shortly after its formation, the sun was surrounded by a similar disc of rocky fragments, dust, and gases. Over time, clumps of this material accreted, sweeping loose particles together forming the now familiar planets and moons of our solar system. Much the same process may be taking place around Vega.

Detection of the cloud of particles resulted from efforts to investigate the infrared portion of the spectrum. Mostly hidden from earth-bound observers because water vapour in the atmosphere absorbs it, infrared radiation provides information unobtainable by other observational methods. Hot objects such as stars emit most of their radiation as ultraviolet or visible light, but cooler objects such as planets, after absorbing these shorter wavelengths, tend to re-radiate energy in the infrared. Thus the detection by IRAS of an excess of infrared radiation near Vega indicates that there are solid objects in this star's neighbourhood which are warmed by radiation from the star.

Canadian scientists applauded the find and intensified their own efforts to detect planetary companions of nearby stars. Bruce Campbell of the Herzberg Institute of Astrophysics and Gordon Walker of the University of British Columbia are working with