

Stockholm conference to the problem of pollution in underdeveloped countries has underlined the importance of a recent publication by the Institute of Chemistry of Ireland. The booklet presents the first publicly available body of evidence on industrial pollution in Eire. The voluntary survey was conducted by a committee chaired by Professor D. C. Pepper of Trinity College, Dublin, who emphasized in the report that "there already exists in Ireland a significant pollution problem that is difficult for industry to control, and that action on many fronts is needed if the problem is not to get rapidly worse".

The survey was made in conjunction with the Confederation of Irish Industry which sent a questionnaire to all its members. More than a third of the 385 firms that responded admitted polluting water to some degree, with a half of these discharging raw sewage (a few reporting effluent with highly toxic constituents, for example, cyanide salts, cadmium, and chromium); a fifth of the firms reported some degree of air pollution and nuisance from excess noise, while a few firms also reported difficulty in obtaining adequate sewerage and solid waste disposal, especially in rural areas.

The need to inform Irish firms about pollution abatement was revealed by the survey that showed that 75 per cent of the firms spent nothing on pollution control in 1971. More than 50 per cent of the firms claimed that their effluent disposal was not subject to local authority regulations—a situa-

tion that the report considered to be very unsatisfactory.

The consensus of opinion among the firms was that an injection of public money would provide a strong incentive to cure the problem of industrial pollution—the larger firms preferring special tax relief, whereas the smaller ones wanted outright cash grants. Most of the firms who were able to estimate the cost of their pollution problem considered that production costs would increase by 3 per cent as a result. This trend in financial thinking was seconded at the meeting by Mr Molloy, who felt it was a public responsibility to clean up pollution. These ideas, however, are at odds with the notion current in some environmentalist circles that the "polluter must pay".

PALAEOLOGY

Mammoths in the Arctic

from our Soviet Correspondent

PALAEOLITHIC remains have been discovered further north than any previously found, according to reports from the Yakutsk Laboratory of Archaeology of the Siberian Branch of the Soviet Academy of Sciences. While investigating the famous "graveyard of mammoths" in the Berelekh region during October 1971, an archaeological team under Professor Yu. Mochanov discovered a number of stone tools as well as some nephrite ornaments.

No description of the artefacts has been given so far; but their importance, it would seem, lies primarily in establishing the limit of palaeolithic settlement into the Arctic. Although Yakutia has long been known as a centre for mammoth ivory—there was a flourishing market in it until the end of the nineteenth century—there has been no evidence until now of palaeolithic mammoth hunters in the area. Professor Mochanov would attribute the "graveyard" to the activities of such hunters—in which case two very interesting problems arise. The first is the long-standing puzzle of how palaeolithic man killed his mammoth, since no suitable weapon has yet been found (pit-falls or driving the beasts over a natural precipice seem the most probable answers). The second, perhaps more important puzzle is provided by the ages and condition of the Berelekh mammoths at the time of death.

At the Predmost site in Czechoslovakia a significant proportion of the bones discovered belonged to half-grown and immature mammoths, and it has been suggested that these were the preferred target of the hunters and that the taking of a fully mature beast was a rare and notable achievement; in which case, this constant thinning out of the

new generation, together with the long gestation time of all elephants, may have contributed to the extinction of the mammoth.

So far, Professor Mochanov has revealed nothing that throws light on these intriguing problems. He seems more interested in establishing the northernmost limits of palaeolithic man, and to this end is planning an expedition for this spring to the Novosibirskie Islands of the Arctic ocean, to seek a possible further outpost of palaeolithic occupation.

INNOVATION

Venture à la Française

A NEW company called the Société d'Etudes pour le Financement de l'Innovation, or SEFINNOVA, has been set up in France. Such a venture follows directly from the *White Paper on Innovation* (see *Nature*, **234**, 166; 1971) that was published by the French government in October 1971. One of the aims of this publication was to create financial corporations to spur innovative processes and SEFINNOVA is the first result of this aim.

The principal author of the white paper was Mr Christian Marbach who was at that time deputy director of research and programmes at the Ministry of Industrial and Scientific Development and it is the same Mr Marbach who will head the new company. The seven members of the staff of SEFINNOVA and its 2.5 million franc capital are at present more modest than the company's ambitions. Intended as a trial effort, SEFINNOVA will, if successful, drop its E for Etudes and be re-designated SOFINNOVA, especially if it can raise considerably more capital than it has at present.

The company has an interministerial watchdog committee and its principal stockholder is the state owned Crédit National with some private firms also holding shares. Thus the company will be free to pick the brains of public organizations in its search for new ideas and it should prove to be a powerful instrument of the French government's strategy.

Supporters of ventures in the research and development field usually support the man rather than the idea. SEFINNOVA is going to break with this tradition by making its money available to unsponsored ideas, those that result from "Here's my discovery, you do something about it." The Paris based firm will then seek out suitable entrepreneurs to develop the idea and make it marketable. Whether SEFINNOVA will sink or swim will depend on whether it can be selective enough in the choosing of winning designs, processes, products and services.

Mathematical History

THE concern of some British mathematicians with the development of the history of mathematics as a subject has led to the formation of the British Society for the History of Mathematics. The society's first president is Dr G. J. Whitrow, Imperial College, University of London, and now, eight weeks after its formation, the society boasts 80 members. These members, according to Dr J. M. Dubbey of Thames Polytechnic, secretary of the society, are evenly distributed between universities on the one hand and polytechnics and colleges of education on the other. The society aims to encourage research in the history of mathematics as well as to support the teaching of the subject. It is planned to achieve these aims by holding regular meetings and conferences but there is no immediate plan to produce a journal of the society.