Siberian mammoths

Gone to the dogs

A GROUP of Siberian construction workers who recently fed their dogs with meat from a frozen mammoth that they had unearthed, instead of reporting their find to the proper authorities, have caused a major shock to Soviet public opinion. Mammoths, to the average Russian, play a particularly emotive role in the country's

prehistory; well into the nineteenth century, some optimists still believed that a living herd might yet be located in the remote wastes of Siberia.

The locals, however, seem to be more blasé. During the 1920s several cases were reported of travellers being offered — and on occasion eating — mammoth flesh. Even if these stories are all untrue, an export trade in mammoth ivory flourished from the eighteenth century until Soviet rule was fully established. (It has been estimated that during this time the tusks of 48,000 mammoths were exported.)

In the case of the most recent find, when, too late, the on-site geologist tried to remonstrate with the men, they merely shrugged and remarked that this would not be the last mammoth to turn up in Yakutia.

The workgang was engaged on construction for the gold mining industry — a somewhat ironic link since, as *Pravda* pointed out last week, a whole preserved mammoth would fetch $100,000 on the world market. (The reward offered last century by the Imperial Academy of Sciences for a well-preserved frozen mammoth was a mere 500 gold rubles).

The conservation and exhibition of well-preserved mammoth specimens has always been a major concern of Russian palaeontologists — the classical examples being the complete specimen brought from Wrangel Island in 1938 and the 1977 find of a baby mammoth, which formed the highlight of the Soviet exhibition in London in 1979.

Professor Nikolai Vereschchagin, of the Institute of Zoology of the Soviet Academy of Sciences, however, has an even more ambitious idea — the recreation of the mammoth by genetic engineering, using cloning techniques to produce, first a semi-hairy hybrid, and subsequently a mammoth. So far, however, none of the frozen mammoth carcases examined by the Academy's Institute of Cytology has yielded revivable cells. The chagrin over the latest find being used for dog-meat is doubtless all the greater. **Vera Rich**

Japan's second X-ray satellite launched

JAPAN seems set to take the lead in X-ray astronomy with the successful launch of the ASTRO-B satellite by the Institute of Space and Astronautical Science (ISAS) on Sunday 20 February. The satellite, named *Tenma* (Pegasus) joins *Hakuchō* (Cygnus), launched in 1979 and still functioning, to give Japan a monopoly in X-ray astronomical observation until the launch of the European Space Agency's EXOSAT later this year.

***Tenma*'s most important detector is a gas scintillation counter which has not previously been flown on a satellite and which has doubled the energy resolution of the usual proportional counters. With an area of 1,000 square centimetres — five times that of the gas scintillation counter to be carried on EXOSAT — it will allow spectral analysis of low-intensity X-ray sources and make it possible to classify many of the sources seen in previous satellite missions.**

***Tenma* also carries a Hadamard transform telescope specially designed to scan wide areas of the sky for high intensity radiation from X-ray bursters. Japanese astronomers have taken the lead in this field since *Hakuchō*, launched not long after the discovery of bursters by Massachusetts Institute of Technology scientists, was successful in finding eight new sources. A soft X-ray detector and a small gamma-ray burst detector are also on board.**

The X-ray astronomical programme will continue with the launch of ASTRO-C in 1986 or 1987. Possible participation by the United Kingdom in the project is being considered in discussions with ISAS.

Japan is unique among space nations in that its scientific space programme is run entirely by the universities and is completely separate from the main programme, aimed at launching commercial telecommunications, navigation and resource satellites and largely using imported US technology. The two groups do not even share launch sites. ISAS, until recently a part of the University of Tokyo but now a separate institute providing facilities for all universities, has developed its own solid-fuel rockets and has launched 13 scientific and test satellites since 1970. It consumes about a tenth of the total space budget, now running at a little over 100,000 million yen (£250 million) annually.

Alun Anderson

European Space Agency

Bias claim

THE European Space Agency (ESA) will decide on its next space mission on 26 March, when the Science Programme Committee will choose one project for "phase B" development. Although the recommendations have been agreed by the Space Science Advisory Committee, geophysicists involved are complaining that the project concerned with geophysics and planetology, the Kepler Mars orbiter, has been voted down because of a built-in bias towards astronomy and astrophysics within ESA's committees.

The five missions originally considered are a solar "seismology" satellite DISCO, Kepler and the satellites ISO, Magellan and X-80, designed for infrared, ultraviolet and X-ray astrophysics respectively. The Solar Systems Working Group (SSWG) was asked to rank DISCO and Kepler for scientific merit and chose DISCO. The Astronomy Working Group (AWG) carried out a similar study of ISO, Magellan and X-80 and chose the first.

DISCO, designed to measure oscillations in solar spectral lines caused by waves in the solar interior, is said by SSWG to "exploit . . . a novel field of astrophysics". The working party says that the Kepler mission would allow "a wide community of European scientists" to study a variety of problems, that there is no overlap with previous US and Soviet satellites and that Kepler is a "unique and valuable opportunity of exceptional scientific merit, deserving full support".

In spite of this accolade, SSWG recommended DISCO. The Space Science Advisory Committee has gone one step further and has recommended ISO rather than DISCO on the grounds that it would be a timely successor to IRAS (the infrared satellite launched earlier this year) with a substantial increase in sensitivity and spectral resolution which would also give valuable experience of supercooled technology in satellites.

The Science Programme Committee, which will make the final selection from the five projects on 26 March, will not be bound by the advice from the scientific working groups. Indeed, at least one member of committee is hoping that it will not be. Marcel Ackerman, of the Belgian Institut d'Aeronomie Spatiale, feels that some of the potential achievements of ISO are overstated in the advisory committee's report and questions whether the technical experience is readily available in Europe to cope with the cryogenic technology required for ISO.

He also raises a broader issue. DISCO, although concerned with the Sun and therefore within the SSWG's remit, is nevertheless essentially an astrophysical project and should therefore, according to Professor Ackerman, have been considered along with the other three

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