

## Juno's coffers bare

### London

THE Juno project, an Anglo-Soviet venture to send a British astronaut and a series of low-cost microgravity experiments to the Mir space station in April 1991 (see *Nature* 343, 107; 11 January 1990), is in disarray following the withdrawal of its original financial backers, the Moscow Narodny Bank.

Unlike the earlier Soviet collaboration with the French, and the plan to put the first Austrian in space in late 1991, Juno has received no government support, and has looked to commercial sponsors to cover the £16 million British contribution. The London-based Moscow Narodny Bank has provided 'seed finance' for the mission for the past nine months, according to its deputy chairman, Sergey Konychev. But Konychev says the bank will provide no more money except to satisfy any legally binding commitments, including paying the trainee astronauts' salaries.

Konychev estimates that only about £2

## Hipparcos in the dark

### London

THE Hipparcos astronomy satellite has emerged successfully from a series of long solar eclipses, drawing from on-board batteries when its solar panels were shadowed by the Earth. The eclipses became inevitable once the satellite became trapped in an elliptical orbit, rather than the planned geostationary one, after its launch last year. During the longest eclipses, some ancillary equipment was shut down, to enable data collection to continue. Even so, an eclipse just five minutes longer than the maximum, on 16 March, would have interrupted measurements.

Although Hipparcos has survived this physical challenge, a decision on the source of future funds for the project has been deferred until October. The European Space Agency (ESA) council, has decided to set up a high-level working group to consider the 'Pinkau' review of ESA's Horizon 2000 science budget (see *Nature* 344, 280; 22 March 1990). The Pinkau report recommends further budget increases, and proposes reforms for the Horizon 2000 programme, including freer competition for contracts awarded by ESA to equipment manufacturers. These are at present awarded to subscriber states in strict proportion to their ESA subscriptions.

A decision on whether to ask ESA subscribers for more money must wait until the working group reports back. From July, when Hipparcos's present budget runs out, until October, money will have to be found from within the existing Horizon 2000 budget.

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million had been raised when the bank withdrew last week, and negotiations in progress looked unlikely to raise this figure beyond £6 million. He is pessimistic about the chances of finding new sponsors in the absence of any agreed television coverage — independent television companies have pulled out of a deal rumoured to be worth £3 million, following Moscow Narodny's withdrawal from the project. The other manned mission proceeding without government funding is a Japanese-Soviet collaboration funded by a Japanese television company, Tokyo Broadcasting System.

Sir Geoffrey Pattie, chairman of Antequera, the company organizing fundraising for Juno, confirmed last week that the lack of interest from British companies meant that Juno cannot continue in its current form. Jack Leeming, from Antequera, last week met with representatives of Glavkosmos, the Soviet space agency, at a space commerce conference in Montreux, Switzerland, to negotiate a modified mission.

Professor Heinz Wolff, Juno's science director, says that "every avenue will be explored" to continue the mission. He says the Soviets have an interest in the planned microgravity research, and also appreciate the goodwill value of launching a British astronaut. But this seems unlikely to change to a willingness to fund the British end of the project.

Wolff says that, for the time being, the £2.3 million science programme will continue unchanged, and the British astronauts, Tim Sharman and Helen Mace, will continue their training in the Soviet Union. But he expects a 'crunch time' within the next month. One possibility being considered is to abandon plans to put a Briton in space and to fly some of the microgravity experiments on other missions.

Douglas Hogg, Trade and Industry Minister, has confirmed that the British government will not rescue the Juno mission.

Juno's failure to interest British companies, despite the media circus accompanying the astronaut selection, augurs badly for another British space project seeking sponsorship. Nina, the British design aiming to enter the 'space sail' race to Mars in 1992 (see *Nature* 344, 185; 15 March 1990), needs £7 million. Cambridge Consultants, the craft's designers, have been told by race organizers that they have "the most advanced technical design", but seem likely to lose out to an Italian design as the favoured European entry. The Italian team has already negotiated sponsorship and have the republic's president as the honorary head of the project.

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## War is unhealthy, US finds

### Washington

AFTER five years of study, the US Centres for Disease Control (CDC) last week concluded that there is no evidence that the chemical defoliant Agent Orange was responsible for causing cancer in US Vietnam War veterans. But the agency did find that in the case of one rare disease — non-Hodgkin's lymphoma — Vietnam veterans showed a 50 per cent higher risk than other men in their age group. It is the first time the US government has acknowledged a link between cancer and service in Vietnam.

Paradoxically, the study showed that the two groups that exhibited the highest incidence of lymphoma were ground troops stationed in areas of lowest Agent Orange use, and sailors in Navy ships based off the coast of Vietnam. Navy veterans who served elsewhere showed no such elevated cancer rate. "The pattern of risk among subgroups of Vietnam veterans seemed to be the opposite of the pattern of use of Agent Orange", CDC reported. Initial speculation was that an anti-malarial drug could be to blame for the increased lymphoma rates, but that has since been discounted. No other explanation has been offered.

Although the study had originally been intended to settle the question of whether Agent Orange was responsible for cancer cases in Vietnam veterans (which would make them eligible for service-related disability payments), early results showed that Agent Orange exposure, as measured by dioxin levels in fat, did not correlate with service records. Few of the veterans who showed raised dioxin levels had handled Agent Orange or travelled through defoliated areas shortly after the areas had been sprayed.

Because the Agent Orange study had been approved contingent on some reliable method being found to determine exposure, that portion of the study was dropped in 1986. Since then, it has been described as a 'Vietnam experience' study, with no particular carcinogen or disease as its target. The CDC researchers compared more than 2,000 cancer cases in US men who were of fighting age during the Vietnam War with 1,776 men in the same age group who did not have cancer. Details of military service were self-reported. Few of the reported data were verified with service records. CDC checked only 70 per cent of the self-reported veterans to see if they had actually served in Vietnam.

Following the release of the CDC study, the US Veterans Affairs agency announced that it would add non-Hodgkin's lymphoma to its list of 'service-connected' diseases. Between 1,600 and 1,800 Vietnam veterans will receive disability payments.

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