

Space telescope

Hubble's terrestrial tail threatens to wag dog

Washington

WHEN the National Aeronautics and Space Administration (NASA) decided to establish an institute to manage scientific operations of the Hubble Space Telescope, it planned a staff of 100 and a budget of \$24 million over five years. But since the institute was established at Johns Hopkins University in 1981, NASA has seen the institute grow to a staff of more than 200, and, with the launch still at least 18 months away, an annual budget of \$12.8 million. Astronomers and NASA officials are now seriously concerned that costs for the project are out of control, and that other worthwhile projects, such as the theoretical astrophysics programme (now running at \$1 million a year) and the \$50 million-a-year Explorer satellite programme, are being squeezed out.

Total operating costs of the space telescope, including development of second-generation instruments and the operation of the Space Telescope Science Institute (STSI), are estimated to reach \$150 million a year, almost one quarter of NASA's physics and astronomy budget. This is on top of the \$1,400 million it has cost to develop the telescope.

Although some of the cost overruns have been the result of unforeseen technical complications in construction and in the necessary ground operations, the astronomy community has begun to look with growing apprehension at the expansion of the institute. The institute's budget request for fiscal year 1986 exceeds \$16 million; by 1989 the figure will be at least \$21 million, without allowing for functions such as data archives and distribution and telecommunications, which have still not been agreed upon. Frank Carr, NASA's deputy director of flight projects for the space telescope, has indicated that reserve funds have already been tapped to supplement this year's appropriation; budget negotiations with STSI have been "a struggle on both sides". The staff is also still growing, and is expected to reach between 250 and 270 by the time the telescope is in full operation; the institute's director, Riccardo Giacconi, is said to want a staff of over 400.

The rapid growth of the institute has led to some drastic measures to find extra office space.

One interpretation often heard in the astronomical community is that Giacconi is engaging in some not-too-subtle empire building, hoping to position the institute to assume scientific responsibility for future satellite observatories. Many of the facilities that would be needed for such future projects as the Advanced X-Ray

Astrophysics Facility (AXAF) are already in place at Giacconi's institute. AXAF would certainly be a desirable catch for the institute, some of whose staff, including Giacconi, have expertise in X-ray astronomy. The space telescope is scheduled to operate for only 15 years; more work at STSI would ensure continued employment for the institute's younger scientists, many of whom are untenured. A spokesman for the institute said Giacconi had no comment to make about the STSI budget or possible management of AXAF.

NASA top brass are thought to be set against allocating future missions to STSI, however. Some astronomers also have reservations: in congressional testimony last year, Robert Bless of the University of Wisconsin said it looked as if too much power was concentrated in one institution; Lyman Spitzer of Princeton University said that problems of communication are exacerbated in a large organization. Spitzer

Japanese cadaver organs

Tsukuba group murder charge?

Tokyo

CONTROVERSY in Japan over the use of brain death (the absence of brain electrical activity) as a criterion of death is being heightened by a new legal challenge. Last week a group composed largely of Tokyo University Hospital doctors asked the Public Prosecutor's Office to charge a Tsukuba University group of three doctors with murder for their part in an operation performed last year.

In September, the Tsukuba group had operated on a 43-year-old woman who had collapsed from a stroke. All signs of brain electrical activity had ceased when the decision was made by the three doctors, Yoji Iwasaki, Katashi Fukao and Tadao Nose, to remove kidneys, pancreas and liver from the woman for a transplant operation. At the time, the woman's heart was still beating. It was the first time that such an operation had been performed in Japan.

Now, the 17-member Patients Rights Study Group has filed a complaint with the prosecutor's office on the grounds that, because the heart was beating, the patient was alive and the taking of organs thus tantamount to murder.

The case strongly recalls that of Toshiro Wada, who performed Japan's first heart transplant operation at Sapporo Medical College, Hokkaido in 1968. He, too, had taken brain death as the criterion of death before removing the heart of a drowned man for transplantation. A similar murder complaint was made by a volunteer group

hoped that if NASA adopts the institute model for managing future satellite observatories they would be kept separate to avoid creating "one large, ponderous, possibly unwieldy organization".

NASA, apparently as part of an effort to draw the line at further expansion of STSI, has commissioned a comprehensive external review of the institute's role from the National Academy of Sciences' committee on space astronomy and astrophysics. That study, which will be completed in April, is headed by William Gordon of Rice University. Gordon said the question of whether STSI should manage future observatories had been raised before his committee but that it would be premature for him to address the question until more experience had accumulated with STSI, which is a novel experiment for NASA. Questions about the space telescope operating budget have also been raised in an advisory panel headed by Jeffrey Linsky of the University of Colorado. Meanwhile, NASA has asked scientists at Goddard Space Flight Center to examine how expertise and facilities developed for the space telescope could best be applied to future satellite observatories by exploiting common functions.

Tim Beardsley

but ultimately the case was dropped.

The furore unleashed at the time was, however, sufficient to prevent anyone attempting another heart transplant. It was only this year that the Ministry of Health and Welfare once more initiated a programme to build a consensus for public acceptance of brain death that would allow heart transplants to resume after a 17-year lapse (see *Nature* 313, 338; 1985). The new legal action is likely to bring matters to a head much more quickly than expected.

Reaction to the indictment from the medical profession has been mixed. Some have expressed regret that the Tsukuba operation was performed before attempts to have brain death accepted by public and doctors had made much progress. There is a fear that the public will now be led into thinking that the use of a brain death criterion will give doctors a free hand to transplant organs at will. On the other hand, there are those who think the case will actually hasten the preparation of new legislation aimed at making brain death the legal criterion of death.

Soon after the announcement of the indictment, a group of Diet members, drawn from all political parties, set up a Life Ethics Problem Study Parliamentary League. The league contains lawyers, doctors and government officials as well as Diet members and hopes speedily to ascertain whether it is necessary to prepare a new law concerning the legal criterion of death.

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