

from abroad

DENMARK

Ballet lessons for astronauts may combat dizziness

Members of the Royal Danish Ballet have been helping researchers in space medicine to learn more about dizziness, a potentially serious hazard in a zero-gravity environment.

A number of dancers were tested in a rotating chair designed to simulate pirouetting. Dizziness was recorded by monitoring the degree of nystagmus—the rhythmical rocking movement of the eye during fast rotation.

The tests were conducted by a team of doctors headed by Dr. K. Zilstorff of the Rikshospitalet and physician to the Copenhagen Royal Ballet.

First to try the especially designed chair were the researchers themselves and their assistants. All nine of these subjects showed marked dizziness after only three revolutions.

When the ballet dancers were tested, the first obvious difference between them and the untrained subjects was that they were naturally relaxed while being rotated and did not try to cling to the chair.

The dancers carried out one series of

tests using the "spot-holding" technique, the subject focusing on a particular spot on the wall before rotation and then attempting to keep the point in view during rotation. It is this method which permits dancers to perform exacting movements in ballet. In "Swan Lake," for instance, members of the chorus have to make no fewer than 32 pirouettes in 24 seconds.

Although all the dancers reacted differently, none became dizzy from spinning in either direction. Though a number of the dancers had strong nystagmus reaction, this was reduced when they used their accustomed spot-holding technique.

No real explanation has been offered as to why ballet dancers can show a marked nystagmus condition and yet not become dizzy. The researchers suggest that it may be simply a matter of hard training, in which case astronauts may well find more practice in spot-fixing and fast spinning exercises included in their training programs.

F. C. Livingstone

AUSTRALIA

Woomera's fate in balance as Britain considers pullout

The future of the Woomera rocket range depends on a report being prepared for the British Government by a team of technologists and defense experts. The team has just completed an inspection of joint projects at Woomera and has held talks in Canberra with Australian officials.

The team has returned to Britain to prepare a review on which the Minister for Technology, Sir Anthony Wedgwood-Benn, will decide Britain's attitude. Negotiations on renewing the present joint-project agreement open in June. This agreement ran out last June but was extended for a year by mutual consent. It involves Britain in a half-share of the costs of research, development and weapons-testing, and costs her about \$15 million this year.

Australian officials fear that in its present economic mood, Britain might pull out altogether. One official said: "We hope that the worst that will happen will be a reduction of commitment and that perhaps Australia might make more use of the facilities and ranges for

her own armed forces."

The British team's report is expected to be followed by an official exchange of views and talks in Canberra and London. A drastic reduction in British interest would probably herald a slashing of the Black Arrow rocket development. This would probably coincide with the final launching by the European Launcher Development Organization.

Future launchings by ELDO will be made at the French equatorial range in Guiana. With these two projects gone and with the United States Defense Department's Sparta space reentry program already at an end, the effect will be felt not only at Woomera, but also at the Weapons Research Establishment at Salisbury.

Little hope is now held of anything fruitful emerging from discussions with Japan on the use of the range facilities. Woomera's future may rest on expanded Australian armed services operations or a new American interest.

William A. Scholes

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