

Indo-Soviet yoga

Space exercises still up aloft

THE joint Soviet-Indian space flight last April has aroused considerable interest in the Soviet Union in the yoga exercises performed by cosmonaut Rakesh Sharma. However, Soviet citizens who wish to learn more about yoga will be disappointed. Interviewed last month on the Moscow television programme "Problems, research and solutions", the chairman of the Committee for Physical Culture, Marat Gramov, stressed that yoga would not be introduced in the Soviet Union since the Soviets have their own system of physical culture and because yoga is not only a system of physical education but also "a philosophy which does not tally with our outlook".

Even so, official accounts of the joint flight stress the importance of the yoga experiment for the training of cosmonauts, not only for the study of the reactions of the human body to orbital flight but also as a means of minimizing the stress on the cardiomyascular system, particularly during the most sensitive period in the first seven days of flight.

Long-stay missions aboard orbital space stations have from the beginning been a key element in the Soviet space programme.

The current record, 211 days, was set up by Valentin Lebedev and Anatolii Berezovoi in 1982. There has been a vigorous drive to counteract the effects of long-term weightlessness. Symptoms such as disorientation and mild hallucinations or hyperactivity of the kidneys have been carefully monitored. Prophylactic measures range from the development of special constrictive suits and electric stimulation units to maintain muscle tone to infusions of *Eleutherococcus* (Siberian ginseng) in the diet of trainee cosmonauts.

Non-Soviet partners in the joint Interkosmos flights have made their own contribution to these studies. On the joint Soviet-Polish mission of 1978, the Polish participants carried out an investigation of changes in the sense of taste under conditions of weightlessness. The aborted Soviet-Bulgarian flight of April 1979 meant the shelving of a package of five Bulgarian medical experiments which have not yet been performed. Sharma's yoga exercises were planned as an experiment, with his physiological reactions after exercise compared with those of his fellow crew members.

According to the official Soviet presentation to Unispace-82, the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space, an important feature of Soviet space medicine is its contribution to general health care and preventive medicine for the population at large.

Vera Rich

UK biotechnology

What market, what share?

THE fear that national strategies for the development of biotechnology will lead to a concentration of attention on a few obvious targets, with the result that "no-one will obtain a reasonable return on his investment", is one of the points made by the authors of a report *Biotechnology and British Industry*, published last week by the UK Science and Engineering Research Council (SERC) (£10). Unusually, the report is the result of a commission by the council's biotechnology directorate from Dr Peter Dunnill of University College London, and Mr Martin Rudd, a professional economist. According to the authors, their most daunting task has been to assemble data about the pattern of manufacturing industry and agriculture in which biotechnology may eventually find application.

The underlying tone of the report is one of bravely suppressed gloom. The objective has been to survey the industrial sectors in which biotechnology has potential, and to interest the industries concerned in their exploitation. Part of the problem is that there are few sectors of British industry where the products manufactured by conventional techniques enjoy such a large share of the international market that biotechnologists will be unambiguously guided to them.

The report nevertheless argues for continuing central support for "bioindustry" on the grounds that many opportunities have arisen in industries (such as food processing) unused to supporting research in the strict sense while, the argument continues, government control of the food, pharmaceutical and waste treatment industries is so direct that it can have a "con-

siderable influence" on commercial development.

The report commends the association of small venture companies with larger traditional manufacturers in the development of new products on the grounds that it may then be possible for the several potential outcomes of a line of development to be exploited by the most appropriate of existing manufacturers.

The report has been able to list close on 50 British newly-formed companies with interests in biotechnology, a dozen of them with academic connections. It acknowledges, however, a shortage of suppliers of equipment, especially in fields such as pilot-scale fermentation plants and related equipment. Although the report was completed before the appearance in the United States earlier this year of the Office of Technology Assessment report on the international biotechnology industry (see *Nature* 307, 402; 1984), Dr Dunnill said earlier this week that he considered that assessment to have belittled British capacity for the supply of reagents for biotechnology.

His own opinion (not included in the report) is that British biotechnology is hamstrung by the conviction of traditional manufacturers that only first-degree graduates make suitable recruits, with the result that academic research and graduate teaching in chemical and biochemical engineering was at a low ebb and the output of trained people on the decline. Dunnill said he hoped to persuade SERC's biotechnology directorate to redress the balance by providing high-level studentships for graduate studies at a meeting later this week. □

Nature index of biotechnology stocks

12-Month high	12-Month low	Company	Close previous month	Close 29 June	Change
14	8	Biogen (Switzerland)	9	8½	-½
2	1⅞	Bio-Logicals (Canada)	1½	1⅞	+¼
14⅞	8	Bio-Response (USA)	8⅞	8¾	-¼
14	10	Cetus (USA)	10¼	11⅞	+1⅞
10⅞	4¼	Collaborative Research (USA)	5⅞	5⅞	+½
19⅞	11½	Damon (USA)	11⅞	14¼	+2⅞
26¼	12½	Enzo-Biochem (USA)	14	15	+1
10⅞	5¼	Flow General (USA)	6⅞	6½	+¼
42¼	28¾	Genentech (USA)	29½	34½	+5
10¾	5½	Genetic Systems (USA)	5¾	5¾	0
17¼	8¼	Genex (USA)	9⅞	9	-⅞
23	12¼	Hybritech (USA)	12⅞	14	+1⅞
16¼	8¾	Molecular Genetics (USA)	9½	10¼	+¾
15½	10	Monoclonal Antibodies (USA)	10¼	12	+1¾
60⅞	42⅞	Novo Industri A/S (Denmark)	43½	44¾	+1¼
22¾	14½	Pharmacia (Sweden)	14½	15⅞	+1⅞

Closing prices are for the last Friday of the month. For over-the-counter stocks, bid price is quoted; for stocks on the American and New York exchanges, the transaction price. *Nature's* weighted index of biotechnology stocks stood at 145 on 29 June, compared with 135 a month earlier. Data from E.F. Hutton, Inc.