

50 per cent of the voting power? (Most of the European member countries say no.)

(2) Supposing a modified version of the present organization is accepted, should the American commercial company, COMSAT, continue to act as international manager to an international organization? Again, this is widely held to be anomalous and, by many, invidious, too—but a clear cut alternative may not emerge immediately.

(3) Should INTELSAT take navigational, meteorological, earth resource and other "service" satellites under its wing, in addition to the public telecommunications links for which it was created? There is, too, the controversial question of whether US launchings will be available for foreign operational satellites of any kind, and on this hangs the independent launcher argument.

(4) The distribution of work contracts under the Interim Agreement has not been ideal—at least in the eyes of technologically competent nations other than the US. (European countries have contributed something like 30 per cent of INTELSAT funds so far and gained only 4 per cent of the contracts.) A formula that is fair to everyone, without jeopardizing the sound principle conveyed in article 10 of the Interim Agreement that contracts should be placed with the "cheapest, best and most timely" bidders, will be hard to devise. This item may take up a good deal of time.

It is perhaps worth remarking that no announcement of the start of the conference or prospectus of its objectives has appeared in this country from any official source apart from the Soviet news agency. There are few areas which are going to exercise so profound an influence on the texture of life as the revolution in long range communications for which this international meeting will provide the programme.

NUTRITION

Can Asians digest Lactose?

THE ability of the Asian bowel to digest lactose has been a topic in the columns of *Nature* for some time now. Two Australian doctors, A. E. Davis and T. Bolin, broached the subject by describing a condition of lactose intolerance in some Asian students resident in Australia (*Nature*, 216, 1244; 1967). When fed with 80 grams of lactose, the Asians, but not the Caucasian controls, developed abdominal pains and diarrhoea, while the relatively small changes in their blood sugar levels indicated a deficiency in intestinal lactase.

The finding has obvious relevance to food aid programmes for Asia, which rely heavily on milk products rich in lactose of which there is a surplus in the Western world. Prophecies of doom were somewhat damped by W. A. McGillivray, a scientist at the New Zealand Dairy Research Institute (*Nature*, 219, 615; 1969). Dr McGillivray made two points: first, all human babies have a supply of lactase. The lactose of their mothers' milk is the only carbohydrate source for most of them. The disappearance of lactase in adult Asians may be an adaptive change, subject to reversal if the Asians had a consistent dietary supply of lactose in their adult life. Secondly, 80 grams is a large dose, and the daily amount of lactose recommended in aid schemes is about one-sixth of this.

Some Thai doctors made the next contribution;

G. Flatz and his colleagues at the University of Chiang Mai showed that lactose intolerance was widespread in Thai adults, even among dairy workers who had been consuming milk products for years (*Nature*, 221, 758; 1969). Dr Flatz set the maximum safe daily dose of lactose at 14 grams, the amount in half a pint of milk. But the central point remains: if adult Asians lack the enzyme lactase, and if, as seems to be the case, this enzyme lack is irreversible, then doubt is cast on the wisdom of emphasizing milk products in aid programmes, for the lactose content of this food will have no nutritive value.

This last point was tackled this week by Dr I. L. Hepner, the editor of *Process Biochemistry*. He pointed out to *Nature* that the American dairy industry has for years been treating milk with lactase, to convert the lactose disaccharide to the much sweeter mixture, galactose plus glucose. The Americans use the process to increase the sweetness of ice cream and chocolate, without recourse to the relatively costly sucrose. Microbial preparations of lactase are quite cheap, and Dr Hepner argues that the process could easily be applied on a mammoth scale to all the Western dairy surplus destined for food aid. Dr Hepner's comment was that "a little more knowledge of current practices in food technology would do no harm to researchers in nutrition".

STORAGE RINGS

Planning Experiments at CERN

CONSTRUCTION work on the intersecting storage rings (ISR) at CERN has now passed the scheduled half way mark, and, barring any major disasters, the proton beams should undergo their first collisions some time in 1971. High energy physicists are already arguing about the suitability of different experiments to the ISR conditions, and Professor Gerard K. O'Neill, of Princeton University, devoted the first of two special lectures on the CERN storage rings, given at University College London, last week, to the factors which affect the choice of experiments and to how physicists are trying to resolve this choice.

Table 1. PARAMETERS OF THE INTERSECTING STORAGE RINGS

Circumference	943 metres
Intersection angle of two beams	15 degrees
Maximum energy of each beam	28 GeV
Total centre of mass energy	54 GeV
Equivalent laboratory energy	1500 GeV
Interaction rate	$1.6 \times 10^5/s$
Momentum spread	2 per cent
Beam current	20 A
No. of interaction regions	8

The principal parameters of the storage rings are given in the table. The interaction energy of the two 28 GeV proton beams in the laboratory frame of reference is 1,500–1,700 GeV, or about sixty times greater than that produced on the proton synchrotron. The existence of this huge energy opens up the way—at least in principle—for investigating two of the most challenging problems currently facing nuclear physicists, namely the existence of the hypothetical particle, the quark, and the possible existence of an inter-