operated in the 60 to 300 GeV range, it was argued, this would still be sufficient to produce a large amount of important physics, even without the possibility of investigating collision energies between 600 and 800 GeV.

In the end, the panel refrained from making any such formal proposal. But it did state that current information from Brookhaven was insufficient to assess whether the pilot production of the dipoles was likely to begin in mid-1981 as planned. "If it is not, the ISABELLE project will encounter significant delays", the sub-panel reported.

Brookhaven scientists have been heartened by the report's recommendation that the successful completion of ISABELLE — including any necessary R and D funding — should remain a top priority of the Department of Energy, as well as becoming "the responsibility of the entire national community".

At the same time, however, others are warning of the dangers of failure in what has become recognized, both at Brookhaven and to a lesser extent at Fermilab, as a high-risk/high-benefit programme still facing large engineering uncertainties.

"The US high-energy programme is now highly dependent on the successful solution of such engineering problems and I would recommend greater diversification to reduce that dependence", Dr Wolfgang Panofsky, director of the Stanford Linear Accelerator Centre (SLAC), told a meeting held in Washington last week to celebrate 50 years of particle accelerator construction.

SLAC is promoting its own proposal, developed by Dr Burton Richter, to construct a machine which would collide bunches of electrons and positrons, passed in tandem down the linear accelerator and then in separate directions around a ring at the end.

Dr Richter is pushing for early funding of the so-called Stanford Linear Collier (SLC), attempting to finesse experiments on CERN's LEP and claim discovery of the intermediate vector boson. The Woods Hole sub-panel examined the proposal closely, describing it as a "fascinating and challenging new departure in accelerator technology". However, the sub-panel refused to endorse SLC for immediate funding. In particular, questions were raised about whether SLC's predicted luminosity would be sufficient to make it truly competitive with LEP, which will also have a larger energy range.

David Dickson

Dead Sea

Coming to life

Theodore Herzl's dream of a canal from the Mediterranean to the Dead Sea is at last a cost-effective proposal, the Israeli government was informed last week. Use

of the 400 m drop between the two seas to generate hydroelectricity could now match the cheapest generation from fossil fuel stations, according to a government-appointed working party chaired by Professor Yuval Neeman of Tel Aviv University.

Assuming an initial investment of \$800 million, the canal with a cascade of hydroelectric installations would, said Dr Neeman, pay for itself in 30 years, simply from the 100–150 MW of hydroelectricity produced. In addition, the canal could provide the sites for nuclear power stations which cannot be accommodated along the crowded Mediterranean coast. (That between Ashkelon and Ashdod has been found to be earthquake-prone.) A thermal power station using the water from the canal but fired by local oil shale deposits could also be built at Ein Bokek.

Ecologically, the main benefit of the canal would be to replenish the waters of the Dead Sea. The only natural feeder of the Dead Sea is the lower Jordan, which draws its water from the Sea of Galilee and from its east bank tributary, the Yarmuk. The Sea of Galilee is however the source of water for virtually the whole country, while the Jordanians have almost completed a major irrigation project involving the diversion of the Yarmuk into the East Ghor Canal. When this is complete, the lower Jordan will shrink even further to a mere 200 million m³ annually, mostly return flow from irrigation.

Evaporation loss from the Dead Sea is 1,200 m³ a year, so that the sea has shrunk considerably — the S'dom potash works have become stranded and a special channel has been built to pump brine to the evaporation pans. By November 1978, in a Knesset debate on the proposed canal, both government and opposition were agreed that any further shrinkage could bring irreversible ecological damage.

Then came the drought of 1979. By September, the Dead Sea had split in two at the narrowest point (some 3 km across) and, according to Shlomo Drori of the Dead Sea Development Company, there was a dry plain some 12 km long between the northern part of the Sea and the southern fragment, then split into a number of pools. Meanwhile, plans were going ahead to use the Dead Sea for generating electricity on the "solar pond" principle, based on the temperature difference developed in brines exposed to sunlight where the density gradient is too great to allow convection mixing. The first solar pond power station was opened at Ein Bokek in December 1979.

The ecological advantages of the proposed canal are admitted by all concerned. Until now, they have been the paramount concern, with hydroelectricity considered rather as a valuable spin-off. As late as the Knesset debate of 1978 on the canal, Energy Minister Yitzhak Moda'i stressed that electricity could still be generated more cheaply from fossil fuels.

Professor Neeman's estimates, for the first time, reverse this situation. However, with the Israeli economy in a state of crisis — inflation is now running at 130 per cent per annum — it is by no means clear whether the government could raise the necessary \$800 million.

Vera Rich

Biogenetic hormones

Insulin trial

Eli Lilly, the US pharmaceutical company, has taken another step along the road to producing human insulin on a commercial scale. Last week, it announced a \$40 million programme to build two plants at its factories at Speke in the United Kingdom and Indianapolis in the United States for the commercial production of human insulin from genetically engineered bacteria. Ultimately, human insulin produced in this way should be much cheaper than the insulin currently extracted from pig and beef pancreas.

Full-scale production, however, is still a few years off. First, any problems cropping up with manufacture on a large scale will have to be resolved and extensive clinical trials have to be done. The first trials with insulin from the company's US laboratories began on healthy people earlier this month at Guy's Hospital in London. Initially at least, the trials are being conducted in the United Kingdom to avoid delay in getting permission from the Food and Drug Administration for trials in the United States.

The tests at Guy's Hospital mark the first time that any recombinant DNA hormone has been injected into humans. Preliminary tests to measure the effectiveness of the new insulin in reducing the blood glucose level of healthy people and their immune response to it should be complete in a few weeks. By the autumn, tests should begin on diabetics. It is expected that human insulin will be tolerated without the production of antibodies. Some diabetics do produce antibodies to insulin derived from pigs and cattle. One possible advantage of human insulin is that it will minimize or eliminate the risk to middle-aged diabetics of eye and liver damage.

The techniques Eli Lilly are using are those developed by Genentech (which will get a cut of the profits) whereby synthetic genes for the A and B insulin chains are put into an *Escherichia coli* plasmid. The bacteria expressing the two genes are fermented separately, killed and broken up to extract the A and B chains. The chains are then chemically combined to produce human insulin. So far, no method of getting genetically engineered bacteria to excrete their products has been found, but Eli Lilly claims that its method of extraction has produced pure insulin free from bacterial fragments.

The production of human insulin from recombinant DNA is more complicated

than the production of antibiotics, where bacteria excrete the product. Nevertheless, it should prove far less costly than the current methods of extracting porcine and beef insulin. The cost of human insulin to the consumer, however, will depend on its penetration into the market and competition from other companies. When costs will come down is still uncertain, especially since Lilly cannot even say yet when it will be in a position to start commercial production.

Judy Redfearn

Environmental protection

Bulgaria ahead

Bulgaria is to spend more than 1,000 million lev (£500 million) on environmental protection during the next five years, President Todor Zhivkov announced recently. He was addressing a meeting held to celebrate the 80th anniversary of the Bulgarian National Agricultural Union.

In Bulgaria, President Zhivkov said, the Constitution makes environmental protection a nationwide matter, dealt with by specially created bodies at all levels of state management. Ecological problems are a compulsory subject in higher educational establishments and throughout the educational system. Special organizations have been set up to deal with erosion and bring reclaimed or neglected soil back into use. Bulgaria, he said, is a world leader in reforestation, planting 400–500 decarees per year.

Zhivkov unequivocally rejected the view of "bourgeois ideologists" who maintain that the violation of the established ecological balance is the result of the modern scientific-technological revolution. On the contrary, he said, this revolution is essentially "our greatest ally in harmonizing relations between society and nature". Although the published data on natural resources are so "very alarming", Zhivkov reiterated that "being aware of the danger is a signal for action, not a cause for pessimism".

Bulgaria is not rich in natural resources, and before the Second World War it was the most backward but one of the European countries (Albania ranked last). Now, however, Zhivkov claimed his country is a "developed industrial agrarian country", with an agriculture capable of feeding "one and a half Bulgarias" and a target of "two Bulgarias" in 1985. Referring to his African tour of two years ago, Zhivkov suggested that if Nigeria, Angola, Ethiopia and Mozambique could apply Bulgarian-type organization and technology to their agriculture, they too would be producing surpluses. Ethiopia, in particular, he said, has especially good soil which could not only support the present population but also "feed a neighbouring state".

Vera Rich

One journal disowns plagiarism

SIR — Your recent article "An Outbreak of Piracy in the Literature" makes it apparent that the *Japanese Journal of Medical Science and Biology (JJMSB)* was a victim of an outbreak of paper piracy by a person called Dr A. Alsabti. I am writing this letter on behalf of the Editorial Board of *JJMSB* to make our position clear. Our unfortunate experience shows how difficult it is to be aware of dastardly and minutely planned piracy of papers.

We first received this manuscript entitled "Effect of Platinum Compounds on Murine Lymphocyte Mitogenesis" on 20 November 1978 from the stated address — Department of Developmental Therapeutics, M.D. Anderson Hospital and Tumor Institute, University of Texas System Cancer Center. After careful reviewing, the manuscript was sent back on 25 December 1978 with referees' comments to Dr Alsabti at his changed address (7520 Brompton Blvd, No. 736, Houston, Texas 77025). The revised manuscript was received in our editorial office on 16 January 1979, but it was still not satisfactory for publication and it was again sent back to him on 12 February. The final revision was received on 2 March, and the editorial board accepted it for publication on 12 April 1979. On 11 May 1979, a galley proof was sent to him and he asked us to send any further correspondence to his new address — 7511 Teal Run, Houston, Texas 77071. On 11 June 1979 the paper was finally published in the April issue of our journal (*Japan. J. med. Sci. Biol.* 32, 53–65, 1979).

The editing of Dr Alsabti's paper therefore followed quite a normal course. However, it may be important to add here that we received three other manuscripts from him at around the same time. These were:

- (1) Effects of tumor cell culture supernatants from various tumor cell line and normal tissues on macrophages.
- (2) Tumor dormancy established in DBA/2 mice with P815Y mastocytoma cell lines.
- (3) Tumor dormant state established in DBA/2 mice by sinecomitant immunization and challenge with lymphoma cells: Role of endogenous viruses in its mechanism.

All these papers were rejected.

Almost one year later we received a shocking letter from Dr D. Wierda of the Chemical Industry Institute of Toxicology, North Carolina, USA. His letter told us an almost unbelievable fact, that the paper entitled "Suppression of Spleen Lymphocyte Mitogenesis in Mice Injected with Platinum Compounds" contributed by himself and Dr T.L. Pazdernik to the *European Journal of Cancer* (15, 1013–1023, 1979) is identical to Dr Alsabti's "Effect of Platinum Compounds on Murine Lymphocyte Mitogenesis"

published in our journal. Dr Wierda enclosed copies of proofs demonstrating the authenticity of his work and suspected that their manuscript was probably pirated during the process of review for the *European Journal of Cancer*. He added that their manuscript was received on 10 October 1978, accepted for publication on 5 January 1979 and published in the August 1979 issue of *European Journal of Cancer*.

In urgent response to Dr Wierda's letter I wrote to Dr Alsabti on 9 June 1980 to ask for an explanation of this unusual situation, specifying a time limit of 15 July, 1980. This letter was sent to his last corresponding address. I also asked Dr Freireich, head of the Department of Developmental Therapeutics, M.D. Anderson Hospital and Tumor Institute, to forward my letter to Dr Alsabti.

On 30 June 1980 Dr Freireich wrote to tell me that he could not forward my letter to Dr Alsabti as his address was unknown. However, he proved that Dr Alsabti had never conducted any scientific research worthy of publication, either in the laboratory or clinic, during his 7 months' stay in his department, and suggested further that his large number of publications are all either outright plagiarisms or were totally imaginary.

We have so far received no reply from Dr Alsabti, although the deadline we gave him has already expired. Furthermore, Dr Wierda notified me on 21 July of the article "Jordanian Denies He Pirated Papers" (in the 11 July issue of *Science*) in which Dr Alsabti claimed that he had not published the paper in *JJMSB*. We therefore decided to retract Dr Alsabti's paper to protect the characters of Drs D. Wierda and T.L. Pazdernik. *Japanese Journal of Medical Science and Biology* hereby announces retraction of his paper from our journal. Our "Retraction Notice" will appear in the coming August issue of *Japan. J. med. Sci. Biol.* 33 (4), 1980 as follows:

The Editorial Board of the Japanese Journal of Medical Sciences and Biology here announces retraction of the following paper from the Journal:

"Effect of Platinum Compounds on Murine Lymphocyte Mitogenesis" by E.A.K. Alsabti, O.N. Ghalib, and M.H. Salem. *Japan. J. med. Sci. Biol.* 32(2), 53–65, 1979.

Judging from several lines of evidence (1–5), this work must have been authentically carried out by Drs D. Wierda, and T.L. Pazdernik, whose paper was almost simultaneously published in the *Eur. J. Cancer* (15 (8), 1013–1023, 1979) under the title of "Suppression of Spleen Lymphocyte Mitogenesis in Mice Injected with Platinum Compounds".

1. Letters from Drs D. Wierda & T.L. Pazdernik.
2. Correspondence to the Head of Department of Developmental Therapeutics, M.D. Anderson Hospital and Tumor Institute, the University of Texas System Cancer Center, with which Dr. Alsabti was affiliated.
3. *Nature* 285, 429–430 (1980).
4. *Science* 208, 1438–1440 (1980).
5. *Science* 209, 249 (1980).

Akira Shishido

National Institute of Health, Tokyo, Japan.