

were generally thought to have moved forward at Cancun, perhaps providing a basis for later, more substantial, agreements. But the movement which several national heads such as Mrs Thatcher and French President Francois Mitterrand claimed was made in the direction of the "global negotiations" being demanded by the more militant of the developing nations was so small as to be virtually imperceptible.

David Dickson

German cancer centre

Commission meets

The first meeting has taken place of the International Commission appointed to look into the continuing problems of the German Cancer Research Centre in Heidelberg (see *Nature* 1 October, p.328). The commission spent 21–23 October in Heidelberg talking to all parties concerned and expects to complete its report in mid-December for delivery by the end of the year.

The task of the commission, under the chairmanship of Sir Michael Stoker, is to carry out an impartial investigation of the problems of governance of the centre and the quality of its research programme following the resignation in June of the director, Dr Hans Neurath. On 23 September Dr Neurath made clear his case saying that his plan to improve the quality of research at the centre had been obstructed and that the institution was "plagued by serious and perhaps irreconcilable conflicts of interest", largely stemming from an "old established majority".

While in Heidelberg the commission met, among others, Dr Neurath, the heads and/or staff representatives of all eight of the institutes that make up the centre and Dr Wolfgang Finke, chairman of the centre's supervisory body, the Kuratorium. The commission also reviewed recent publications by the staff of the centre.

The commission is likely to focus its attention on the Scientific Council of the centre, an internal body consisting of the eight heads of institute together with one other member of each institute who is elected by the staff. As it stands, any director of the centre wishing to make major changes in its activities would need either to have the majority support of the Scientific Council or be prepared to try and push ahead regardless. It is clear that Dr Neurath's proposals to bolster the quality and quantity of basic research at the expense of some clinical therapy and anti-cancer drug screening did not enjoy the support of the Scientific Council.

It will be for the next director, not the commission, to decide what policy to implement. He or she is not likely to be chosen until after the commission has reported but an announcement of the interim director is due in mid-November. The commission must hope that its advice leads to the possibility of effective direction next time round.

Peter Newmark

New improved PWRs

The task force appointed during the summer to streamline the design of a pressurized water reactor (PWR) suitable for British conditions has worked swiftly. Its new reference design was adopted by the Central Electricity Generating Board last week. The National Nuclear Corporation, for whom the task force did its work, will now draw up detailed specifications based on the reference design for Britain's first PWR planned to be built at Sizewell in Suffolk. The detailed design should be published next April or May, but the corporation plans to have an estimate of cost within two months.

The task force's apparent success follows on the nuclear corporation's earlier failure to design a satisfactory British PWR. The corporation's efforts were scrapped by the Department of Energy after the estimated cost of the reactor began to soar, largely due to the incorporation of extra safety features. The department appointed Dr Walter Marshall, chairman of the UK Atomic Energy Authority, to lead the task force to come up with a cheaper design quickly.

The details of the new reference design have not been released, but it is thought to resemble closely the standardized nuclear power plant system, SNUPPS, on which PWRs built by Westinghouse in the United States are based. It is unlikely that it retains any of the extra safety features incorporated in the previous attempted design, which included extra emergency core cooling systems, modified coolant pumps and extra thick concrete shielding.

The task force's design has taken only three months. Speed was important to meet the deadline set for the public inquiry into the siting of the reactor at Sizewell due by the end of 1982. A detailed specification of the reactor must be published well before the inquiry to permit public scrutiny.

Judy Redfearn

Oil pollution

British problems

The British government machinery for coping with major oil spills is inadequate, according to the Royal Commission on Environmental Pollution, whose latest report on oil pollution of the sea was published last week. The problem is that too many government departments, local and other interested bodies, often with conflicting interests, are involved in clean-up operations. The commission's report recommends that responsibility for dealing with the larger spills should be vested solely with the Marine Pollution Control Unit, which should be strengthened to cope with the task and made responsible to both the

Departments of Trade and the Environment.

The commission's report is the outcome of three years of study begun when the *Amoco Cadiz* spilt 200,000 tons of crude oil after running aground in the English Channel off the north coast of France. Although British coasts escaped extensive pollution (the coasts of Brittany bore the brunt), the incident reinforced public anxiety over the environmental consequences of major oil spills. The then Labour government requested the royal commission to investigate the general issue and accordingly its report is wide ranging, including sources of oil pollution, the consequences of both chronic pollution and major spills for marine life and public amenities and international and national attempts at prevention and control.



Sites of major oil spills around Europe

The report, however, has one word of reassurance. The commission found that neither chronic oil pollution nor major spills pose a permanent threat to the marine environment. Oil slicks affect marine life only for as far as they extend and as long as they last. Once they disperse, marine systems usually recover over a period of a few months to several years. Although sea birds are more susceptible to the effects of both chronic pollution and major spills than are fish, the commission found no evidence that any breeding colonies in Britain are currently threatened. Intertidal ecosystems are likely to suffer more than marine life in the open sea.

The commission found that research on the effects of oil on marine animals is adequate but that a lack of knowledge of the natural variability of marine systems makes it difficult to assess the singular effects of oil spills. Hence, rather than more research it urges greater coordination, in particular between research on oil and that on other pollutants such as heavy metals and polychlorinated biphenyls.

Despite the reassurance, however, the commission says that the immediate effects of major oil spills are sufficiently unpleasant to warrant greater effort at prevention and a more efficient way of coping with accidents. British government policy comes in for a drubbing. According to the

report, the Department of Trade lacks a sense of urgency in negotiating international agreements on standards for oil tankers and controls to monitor the competence of crews. The hydrographic survey of shipping lanes around Britain is also inadequate. The report recommends that the government should extend the limit of territorial waters from three to twelve miles and that permission for oil drilling in areas of the North Sea designated environmentally important should be refused.

The brunt of the criticism, however, is reserved for contingency plans to cope with oil spills. Apart from divided responsibilities, the commission criticizes the emphasis put on the use of chemicals — themselves more dangerous to marine life than oil — for dispersing oil slicks on the open sea. More attention, it says, should be paid to coping with oil in harbours and on the sea shore. Local authorities should remain responsible for minor spills, especially those inshore, but a small permanent core of experts should be available nationally to coordinate clean-up operations and advise on major spills.

The commission rejects the government's proposal to set up local Coastal Pollution Coordination Centres when major spills occur, on the grounds that their remit to achieve consensus between interested bodies will render them ineffective. Instead, it recommends that the existing Marine Pollution Control Unit, responsible to the Department of Trade, should be revamped to take on the task. The unit's operations at sea should remain under the trade department but operations onshore should come under the responsibility of the Department of the Environment. **Judy Redfearn**

Indian satellites

November launch

New Delhi

India is hoping to launch its second Earth observation satellite, Bhaskara II, some time in November before it takes a major step in space communication technology when Indian National Satellite IA (INSAT IA) is launched in April 1982. Bhaskara II, an improved version of Bhaskara I, is now being transported to the cosmodrome at Volgograd in the Soviet Union for installation on board a Soviet launch vehicle.

Bhaskara I, launched on 7 June 1979, was expected to function for a year, but continued to operate normally until 1 August this year. The satellite achieved most of its goals in the process. Bhaskara II is to carry a two-band television camera for visible and near infrared imaging and a three-frequency radio meter operating at 19,22 and 31 GHz frequencies.

Meanwhile, INSAT IA is being prepared for launch on a Delta vehicle from Cape Canaveral in the United States. INSAT IA is a three-axis stabilized satellite

like Apple, India's experimental communications satellite launched last June. INSAT IA is to be stationed in a parking orbit at longitude 74°E; this will facilitate nationwide television and radio broadcasting and long distance telephone connections during its seven years in orbit.

India's meteorological department is setting up a meteorological data utilization centre in Delhi, 110 data collection platforms on land and sea all over the country and 100 disaster warning sets in the coastal areas to operate in conjunction with the meteorological payloads to be provided by INSAT-IA. The telecommunications component will provide more than 8,000 two-way long distance telephone circuits, round-the-clock weather forecasting and mapping of the entire country.

INSAT-IA will be followed by INSAT-IB to be parked in the 94°E geostationary orbit.

The International Telecommunications Satellite Organization has agreed to increase by 12 per cent the capacities of the two Indian satellites to be placed in the geostationary equatorial orbit. This would make possible more intensive use of the telecommunications capacity of INSAT.

Sunil Saraf

Sun-comet collision

Extreme conditions

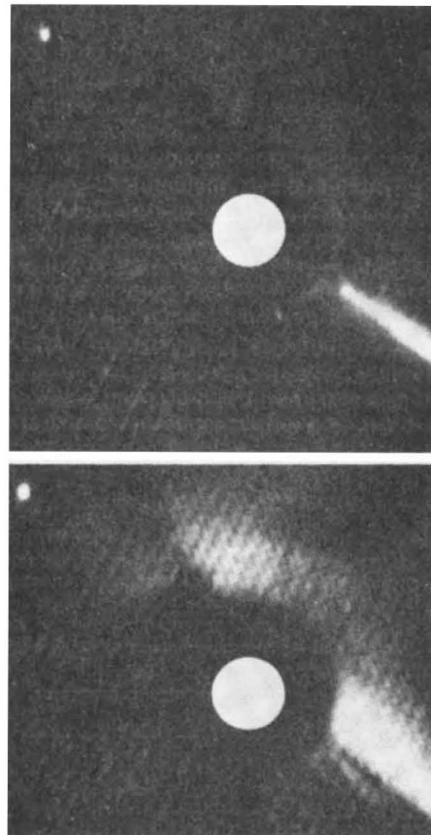
The first ever recorded collision between a comet and the Sun was detected by a US Air Force satellite in mid-1979, the Department of Defense has revealed. The news has only just emerged because the satellite experiments had been given low priority, and the data tapes have only just been analysed.

Dr Donald J. Michels, the Naval Research Laboratory scientist whose "Solwind" coronagraph detected the collision, estimates that the impact velocity was 640,000 miles per hour. But the orbit is not very well determined because the comet only appears on eight frames, covering 138 minutes, before it disappears behind the occulting dish of the coronagraph. A few hours later, a gigantic cloud of debris is visible extending a few million miles above the solar surface. The record continues for about 24 hours after the collision.

Michels' experiment was not designed to detect comets, but to collect data on coronal transients which might later be correlated with magnetic storms or aurora on Earth — phenomena which can interfere with missile warning systems. It consists of a one-inch telescope designed to give high rejection of scattered light. It is aimed at the Sun, with an occulting dish shadowing a region of about two and a half times the solar radius. Thus the apparatus did not detect the actual moment of contact on 30 August 1979, but only the approach of the comet and the coronal events after the collision.

The telescope — still in operation — records a white light image on a videon tube, so there is no spectral information. But it is possible to extract some polarization information, Michels says.

Michels is not a cometary scientist, and to analyse the data he will work with Dr Zdenek Sekanina, an expert on cometary dust at the Jet Propulsion Laboratory, Pasadena.



A Sun-grazer comet collides with the Sun on 30 August 1979, observed by a US defence satellite. Above: the approach. Below: the debris. The Sun is obscured by an occulting dish to the equivalent of 2.5 solar radii, but the white disk indicates the Sun's position and size. Venus appears to left. Eleven hours separate the two pictures.

According to Sekanina, the most important missing factor is the cometary orbit. Without that it is difficult to analyse the three-dimensional motion of the dust and tail. So Michels has put out a request for other observers to check their data to see if there are any earlier pictures of the comet on the way to the Sun. So far they have had no success.

But even without the orbit it will be possible to learn something from the pictures, says Sekanina. The time evolution of the tail in the intense radiation environment close to the Sun should yield new data on dust particle sizes and composition. For instance, it would be interesting to estimate the distance from the Sun at which the particles start evaporating.

The collision is an extreme case, in extreme conditions, says Sekanina, and that is bound to reveal something.

Robert Walgate