

cern at present.

In short, the commission believes that society should adopt what can best be described as a public health policy towards the use of drugs. Arguing that the rationale behind federal, state and local programmes designed to prevent abuse and to treat and rehabilitate so-called drug abusers needs careful re-examination, the commission suggests that law enforcement, information and education, treatment and rehabilitation and scientific research all have important parts to play. But in each of these areas, present policies and attitudes leave much to be desired.

As for law enforcement, the commission believes that federal efforts, which are split between the Customs Bureau and a sheaf of agencies in the Department of Justice, are badly co-ordinated. It suggests also that a vigorous enforcement effort should be directed at middle and upper level traffickers, rather than at street level pushers, but argues strongly against minimum mandatory sentences. This is in sharp contradiction to proposals sent to Congress by President Nixon just a few days before the report was published. President Nixon called for jailing anybody convicted of selling small quantities opiates for 5 years, for a minimum of ten years in prison for those convicted of selling larger amounts, and for life imprisonment without parole for second offenders convicted of selling more than four ounces of an opiate. Mandatory minimum sentences, the commission believes, would be counter-productive, for in many cases judges may be more ready to acquit an offender rather than to lock him up and throw away the key.

The commission agonizes over the question of whether or not simple possession of an illegal drug should constitute a crime, and finally decides that only in the case of marihuana should criminal sanctions against possession be lifted. It comes to such a conclusion for two chief reasons. First, removal of criminal sanctions for possession of an illegal drug may also remove some discouragement of its use, and second, enforcement of the possession laws will help to detect persons who may benefit from treatment. Following from that, the commission recommends that a drug-dependent person arrested for an offence related to his dependence should be put into a treatment programme either in lieu of prosecution, or after conviction but before sentencing. Failure to comply with the conditions of treatment would result in return to court for conviction or for sentencing.

As for treatment, the commission believes that money has been poured into programmes with little evaluation of their effectiveness and concludes that "fundamental assumptions are not ques-

tioned, programs are not evaluated and the problem is perpetuated from fiscal year to fiscal year. 'Drug abuse' spending in the last decade can be summarized thus: an ill-defined problem emotionally expressed, led to ill-defined programs, lavishly funded."

On methadone maintenance for heroin-dependent persons, the commission suggests that it "is a promising means of neutralizing the opiate-dependent person's preoccupation with the drug. Provided drug-free regimens are also available as alternative treatment modalities, in every community, and voluntary entry is emphasized, we believe that treatment officials should continue to expand and improve maintenance services".

But the commission does decide to recommend against a heroin maintenance scheme such as the British method. If the objective is simply to reduce drug-related crime, then a heroin maintenance scheme would be appropriate, but the commission suggests that heroin maintenance schemes would tend to displace methadone maintenance, that the benefits to the dependent person are outweighed by the therapeutic disadvantages, and that in any case, other treatment methods have not yet been given a fair chance. Nevertheless, the

commission believes that the British heroin maintenance scheme should be carefully evaluated.

The report also has harsh words to say about drug information and education programmes, suggesting that they have not been properly evaluated, that many present factually incorrect material, and that some may even lead to increased use of dangerous drugs. The commission is consequently driven to recommend that an immediate moratorium be placed on the production and dissemination of new drug information materials until standards for accuracy and concept can be drawn up, and that in view of the ignorance about the impact of drug education, a moratorium should be placed on drug education programmes in schools. At the very least, the commission recommends that state laws requiring compulsory drug education classes in schools should be repealed.

Perhaps the commission's chief recommendation, directed at the federal government, is that a single, independent federal agency should be established, on the lines of the Atomic Energy Commission, to establish, coordinate and administer all government drug policy. The agency, which could be called the Controlled Substances

EARTHQUAKES

Quake-waiting

by our Washington Correspondent

THE first official prediction that an earthquake will take place at a specific location was made last week by the US Geological Survey. There is a "good likelihood", the survey said, that a small earthquake of magnitude about 4.5 and with a focal depth of about 3.5 miles will occur at a point on the San Andreas fault about 20 miles south-east of Hollister, a small town in northern California. The only parameter which cannot be predicted so precisely is the timing—the event is expected to occur "within the next few months". Officials in the Geological Survey are quick to point out, however, that a unique and well documented set of events has led to the prediction and that other regions of the fault may not be so predictable.

In short, the earthquake is expected to take place at 36°40'N and 121°17'NE, on a segment of the San Andreas Fault which has been extensively studied by seismologists from the USGS research centre at Menlo Park. Four earthquakes of magnitudes between 4.0 and 5.0 have taken place at opposite ends of a 12.5 mile section of the fault since December 1971—two at the northern and two at the southern end—and these have increased the strain at the centre

of the section. The strain would be relieved by an earthquake of magnitude about 4.5.

Chiefly the work of two USGS seismologists, Robert L. Wesson and William L. Ellsworth, the prediction is contained in a paper which will be delivered at the annual meeting of the American Geophysical Union in Washington DC in April. The Geological Survey, anxious to allay any fears that may have arisen in Hollister after the prediction was picked up by the press last week, rushed out an announcement.

Another paper by Wesson and Ellsworth to be delivered at the AGU meeting gives details of a study of several earthquakes which took place in California between 1952 and 1972. In every case, they found that the quake was preceded by great numbers of micro-earthquakes, and they suggest that such activity "is a necessary condition for the later occurrence of a moderate or larger earthquake in California".

One result of the public announcement of the prediction is that there will probably be a rush of seismologists to the area of the predicted earthquake, and the event, if it takes place, will be very carefully studied. In particular, any precursors will be closely monitored, and much valuable data could result. If it does not occur, at least the USGS has the letout that it did not predict the time of occurrence.

Agency, would absorb the functions of agencies concerned with drug abuse law enforcement, treatment and rehabilitation, research and education. To avoid institutionalizing the drug problem, the commission also recommends that the agency should be disbanded after five years. Such a drastic step is recommended because there is considerable duplication between the various agencies and little effective coordination.

Last year a Special Action Office for Drug Abuse Prevention (SAODAP) was established in the White House to oversee and coordinate the work of the various agencies concerned with treatment, rehabilitation and education programmes. But the commission suggests that the office is at best a stop-gap measure, and it has failed to provide adequate coordination. And, on the law enforcement side, the report gives details of overlap, rivalry and lack of cooperation between the various drug abuse law enforcement agencies.

The Controlled Substances Agency would distribute and monitor grants to states for treatment, rehabilitation, prevention, education and law enforcement programmes, it would develop and implement a general research plan, it would evaluate ongoing programmes and it would provide a data bank for policy planning. Like the AEC, the head of the agency would be a sub-cabinet official who would report directly to the President.

But the proposal has little chance of being adopted. For one thing, Senator Jacob Javits and Senator Harold Hughes, the two Senate appointees on the commission, both dissented from the recommendation because they believe that the Special Action Office has not yet been given a chance to show its mettle. Their lack of support probably precludes passage of legislation by Congress to set up such an agency. More important, a few hours after the commission's report was made public, a White House press spokesman announced that President Nixon will soon send Congress a reorganization plan to amalgamate all the drug abuse law enforcement agencies into a single agency within the Department of Justice. Although that would fit in with the commission's desire to coordinate law enforcement activities, it leaves aside the treatment, information and research activities. But the reorganization would neatly cut the ground from under the commission's feet.

In sum, the commission's report is likely to find that its chief impact will stem not from its recommendations but from its appeal for a more rational approach from its low-key assessments of prevailing attitudes as well as from the emergence of such radical suggestions from such a relatively conservative body.

INTERNATIONAL COOPERATION

Cooperation Begins

by our Washington Correspondent

COOPERATION between the United States and the Soviet Union on a number of scientific projects, promised in an agreement signed during President Nixon's visit to Moscow nearly a year ago, finally got under way last week. The US-USSR Joint Commission on Scientific and Technical Cooperation, set up by the Moscow agreement (see *Nature*, 237, 247; 1972), held its first meeting in Washington and approved about twenty-five specific joint projects. Although the projects nearly all involve applied science and will ultimately be of benefit to industry, many of them will be carried out in universities. Approval was also given for Soviet participation in the US Deep Sea drilling Project (see page 289).

In addition to approving projects, the Joint Commission also designated specific individuals in each country to organize and coordinate the work involved in each project; and drew up guidelines for financing them. No funding levels have, however, been proposed.

In addition to the general agreement on scientific and technical cooperation, agreements on health research, environmental science and space research were also signed in Moscow last May. These other specific agreements have already produced results—putative human cancer viruses and drugs have been exchanged, a list of projects in environmental science has been agreed to, planning is progressing well on the joint Apollo-Soyuz docking mission and there has been much East-West travel by scientists and officials. And now that the Joint Commission has finally met—its first meeting has been put back several times since it was first due to take place last October—it is hoped that this new scientific detente will be extended to cover a number of new areas.

The commission agreed to proposals for joint research and development in six chief areas: energy research and development, application of computers to management, agricultural research, microbiological synthesis, chemical catalysis and water resources. The industrial bent of most of the projects is evident from the following examples in each area:

- In energy research, the commission decided to concentrate on five areas—electric power systems and transmission lines, including superconducting transmission, magnetohydrodynamics and solar and geothermal energy. Last year, when the agreement was first signed, thermonuclear research was widely canvassed as a possibility for joint coopera-

tion, but has since been dropped, possibly for security reasons.

- Systems analysis, the use of computers for managing large cities, econometric modelling and the design of software were agreed to as projects for cooperation in the field of the application of computers to management. Dr H. Guyford Stever, director of the National Science Foundation and the US co-chairman of the commission, said last week that strategic products which are embargoed for export from the United States to the Soviet Union, which includes computers, were not discussed.

- In agricultural research, crop breeding and protection, increased production of farm animals and poultry and the mechanization of agricultural production were agreed as priority areas.

- On water resources, the commission approved four projects for immediate implementation—water resource planning, cold weather construction techniques, automation and remote control of water resource systems, and the use of plastics in construction.

- In the area of chemical catalysis, the commission approved five projects, including the application of catalysis to life support systems for possible use in space exploration and the use of catalysis for environment control—the use of catalytic converters for reducing harmful emissions from automobile exhausts, for example.

- Finally, on microbiological synthesis, the commission decided that a group of scientists from the United States should visit the Soviet Union before priority areas were defined.

Short Notes

Honing the Knife

ALTHOUGH Senator William Proxmire's views on economy in federal spending are by now well known, his utterances on the space budget bear especially close watching this year because he has recently been made chairman of the Appropriations subcommittee which deals with NASA's budget. Proxmire has now suggested that the agency's proposed budget for 1974 should be cut by a further \$500 million, chiefly by scrapping the shuttle and stretching out the Skylab programme. The suggestion formed part of a counter-budget in which Proxmire outlined reductions of more than \$4,000 million in President Nixon's spending proposals for 1974, chiefly by taking the axe to several programmes of the Department of Defense. Apart from the shuttle and Skylab, Proxmire suggests that "additional savings could be made in a much more vigorous effort to substitute unmanned for manned space efforts".