The new national guidelines are expected to follow much the same lines as the NIH and Williams precedents. There will probably be an equivalent to Britain's GMAG with mixed representation. Guidelines will be voluntary, and it is hoped that industry, for the inclusion of which there are apparently no immediate plans, will follow them. There are no national P4 facilities in Germany, and few that would qualify as P3 facilities.

Switzerland. The Swiss Academy of Medical Sciences created a standing committee known as the Commission on Experimental Genetics. Headed by Werner Arber, Professor of Microbiology at the University of Basel, it has a membership of about a dozen, consisting of experts in the field and government officials from the health and science and technology ministries. Industry is ostensibly as keen as the universities to see controls implemented, and is represented on the Commission.

The Commission decided recently to follow the NIH guidelines, but this could still change in the future. It has been agreed with government agencies that no legislation is necessary. Researchers applying to the Swiss grant-giving body (*Suisse National Fonds*, SNF) and supplying relevant details would go before the Commission only when the SNF is unhappy; but they will probably be invited to register their work.

Sweden. An 11-man "committee concerning research with recombinant DNA" was set up last spring under the auspices of the Natural Science Research Council (NFR), the Medical Research Council (MFR) and the Swedish Cancer Society (RmC). Its chairman, Professor Peter Reichard of the Karolinska Institute, is the appointee on the committee of the NFR, which also appoints two lay representatives—in this case two MPs. The MFR, RmC, the Council for Forestry and Agricultural Research, the Board of Health and Welfare and the Association for the Pharmaceutical Industry each appoint one member; one member jointly represents the Academy of Sciences and the Academy of Engineering Sciences, another jointly represents the National Defence Research Institute and the Board for Technical Development; the Central Organisation for Salaried Employees appoints a representative for technical staff.

The committee will help granting agencies and government authorities to determine safety conditions for the experiments which they fund, and will probably work in the private sector as well. The committee will also advise researchers over safety precautions and help in risk classification, for which a working group has just been appointed. Researchers will be expected to submit experimental protocols to national advisory committees, which are responsible for specifying the containment measures. The containment procedures proposed are those of Williams, but experiments prohibited under the NIH guidelines, it is suggested, should not be carried out. Local safety committees would be responsible for supervising the measures.

So far the committee has received no applications and no recombinant DNA work is proceeding. The only group in Sweden which has worked in the field is at Uppsala under Professor Lennart Philipson, the MFR's appointee on the committee. His work is in abeyance, and he has yet to submit an application. The group has applied to have two new P3 laboratories built, but finance for these is not yet assured.

Denmark. Denmark has two committees. One, headed by Dr Kjeld Marcker from Aarhus, is an ad hoc committee established by the country's research council. It is examining work being done in Denmark and hopes to decide by the summer whether there ought to be a special research programme. The other is a Committee of Registration with 10 members representing research councils and industry but not trade unions. Its concern is with safety aspects, and it has been operating only a few months. The precise course it follows depends on the outcome of the first committee's work.

Holland. In January of last year, after consultation between the Royal Dutch Academy of Science and the National Health Council on the one hand, and the Ministry of Education and Science and the Ministry of Health on the other, a "Commission on Genetic Manipulation" was formed consisting of experts in the field and chaired by Professor Bootsma of Erasmus University, Rotterdam.

Its task was to compile an inventory of recombinant DNA research being done in the country and to advise laboratories on safeguards and the authorities on controls. The commission is expected to report its findings within the next two weeks, but there are differences of view about whether these should actually be published. The Dutch began by opting for the NIH guidelines but then switched to the Williams guidelines; now, however, it seems possible that national guidelines will be proposed which are more strict than either.

So far industry has not shown any public interest in the guidelines. Applications have come for six projects, from four universities. Three have come from the University of Amsterdam, and one from the Free University of Amsterdam, the University of Leiden and the University of Groningen.

Israel. A committee of the Israel Academy of Sciences and Humanities, chaired by Professor Leo Sachs of the Weizmann Institute, has recommended the establishment of a national safety committee for recombinant DNA research and of special safety committees at universities and research centres.

Legislation for US?

Legislation to control recombinant DNA research in the United States, a prospect which clearly concerns many scientists, is now considered inevitable. Bills have already been introduced into Congress, and in the next few weeks a committee consisting of officials from a number of federal agencies is expected to draft legislation to be submitted to Congress with the backing of the Carter Administration.

The Administration is reluctantly being pushed into drafting its own bill because if it doesn't, it will invite the prospect of harsher legislation and inconsistent local controls on recombinant DNA research. At present, the only formal controls on recombinant DNA research in the United States are guidelines issued last June by the National Institutes of Health (NIH), but they apply only to research supported by the federal government, and they are not backed by any enforcement or monitoring mechanism. Industry is not bound by any regulations.

Those apparent weaknesses in the present approach have prompted several state and local governments to consider adopting their own regulations on recombinant DNA research, and the fact that industrial research is not regulated at all has caused considerable public concern. Consequently, an inter-agency committee was established late last year under the chairmanship of NIH Director Donald Fredrickson to examine ways to extend the NIH guidelines to cover all recombinant DNA research in the United States. The committee has tentatively decided that no existing federal law can be used to extend and enforce the guidelines, and that new legislation is required.

That tentative conclusion was conveyed by Fredrickson last week to a group of prominent scientists and university administrators which met at NIH. Though Fredrickson repeatedly noted that no decision has been reached on the substance of the Administration's bill, it would almost certainly be designed simply to turn the NIH guidelines into enforceable regulations. It is also likely to include a clause pre-empting state and local regulations in an effort to ensure that regulations are uniform throughout the United States. It is not clear which agency would do the enforcing—clearly NIH wouldn't want to be in the position of supporting and regulating the research—but the likelihood is that the Center for Disease Control would be given the responsibility.

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