

For those in peril: 2

Charlie Clutterbuck, Alan Dalton and Andy Solandt, of the British Society for Social Responsibility in Science, consider what action needs to be taken to identify and regulate industrial health hazards.

OVER the past two decades the petrochemical industry has expanded more rapidly than any other. It is estimated that thousands of new chemicals are introduced into the production processes of the industry each year. One such chemical is vinylchloride monomer (VCM), which is used in the production of one of the world's most important plastics—PVC (polyvinylchloride). Unlike most of the new chemicals introduced into the work environment, VCM has been fairly well studied and was thought to be non-toxic. From being a 'harmless' compound twelve months ago, VCM is now, however, being described as "the occupational hazard of the century" (William Lloyd, United States National Institute for Occupational Health and Safety.) What then might be the dangers of those countless other chemicals that have never been tested as health hazards?

Dr Epstein of Case Western Reserve University Medical School, a specialist on industrial carcinogens, asserts that "In the absence of pre-testing, the worker himself or herself, is unwittingly used as an involuntary test subject, to whom data are not generally available, if indeed they are ever collected and analysed." (Regulatory Aspects of Occupational Carcinogens presented to an International Chemical Federation Conference in Geneva in October 1974.) As a result of this post hoc procedure the health and livelihood of people on the shop floor and in the monitoring labs of industry are in constant jeopardy.

What can the concerned scientist do to help improve this disgraceful situation? One possible answer was suggested by Peter J. Smith in *Nature* (October 18). He proposed that scientists should admit moral responsibility for taking a clear lead in seeing that the ill effects of science and technology are eliminated or at least mitigated." He then went on to suggest that the ways in which scientists could take this 'clear lead' was to do thorough research on health hazards and to ensure that the results of this research be made public. He realised that this work had to be supported by vigorous campaigning to acquire the necessary finances. He also recognised some of the difficulties in

obtaining statistics on health hazards. "Of course, employers frequently attempt to justify their refusal to disclose vital information on the grounds of commercial secrecy—a ploy which is sometimes legitimate, sometimes not."

Unfortunately, however, he was not at all clear on where this information should go and on how it could be presented in order to achieve maximum impact. Clearly the usual procedure of merely publishing in academic journals would accomplish little. Perhaps, as Smith implies in his article, the information should go to a body of elite scientists which would have "an immense potential for influencing public and government opinion." And is it merely opinion that we want to change?

The British Society for Social Responsibility in Science (BSSRS) has been actively combatting some of the hazards of work over the past year. Although this by no means makes us 'experts' in occupational health, it has furnished us with enough experience to enable us to offer a fairly concrete and systematic alternative to Smith's proposals. Before we describe this alternative we describe a case history which is a typical example of the handling of health hazards in industry.

In 1961, a medical officer at a Dow Chemical plant in the United States, discovered that VCM was the probable cause of serious liver damage in a number of men in the plant. On the basis of this, Dow drastically reduced its TLV (threshold limit value or maximum 'safe' time-weighted average) for VCM to 50 p.p.m. This action was made public. But none of the other PVC manufacturers followed Dow's lead. We had to wait until one man, Earl Parkes, had taken B. F. Goodrich of Kentucky to court *twice* to obtain compensation for his liver damage before the knowledge of the dangers of VCM became widely publicised. (Earl Parkes and two other men at B. F. Goodrich subsequently died of the liver cancer angiosarcoma.) So far, one death due to angiosarcoma has been confirmed in Britain. Recently VCM has been associated with lung cancer, painful swelling of the joints of the hands and feet and degeneration of the central nervous system.

Now that the dangers of VCM are widely known, what is being done to protect people from exposure to it? In both the United Kingdom and the United States, industry has adopted emergency standards of 50 p.p.m., with a time-weighted average of 25 p.p.m. The Department of Employment has

set up a special committee to determine a code of practice for VCM; it is important that it reports soon. It has been deliberating for 6 months already and apparently it has not as yet even discussed the problem of a TLV.

Perhaps it will adopt the recent OSHA (Occupational Safety and Health Act in the United States) standard of 1 p.p.m. While this reduction is a welcome improvement however, it must be recognised that the TLV is only a small part of the problem. For even though a relatively low standard has now been set for VCM the OSHA has completely ignored a special committee's report on ways of enforcing this standard. Dr Epstein has made this comment on OSHA's recommendation: "However, the major key provisions of the Committee, including those endorsed by corporate scientists on the Committee, were disregarded by OSHA, presumably under strong industrial pressure." These included recommendations of the committee to ensure the effective implementation of the carcinogen standards by instituting sensitive environmental monitoring systems and a permit system. (Regulatory Aspects of Occupational Carcinogens presented to the ICF Conference, Geneva, 1974.) We can only hope that the new United Kingdom Commission on Health and Safety at Work will prove to be more stringent and independent in its approach to the problem.

It is too early for BSSRS to define clearly 'workers' science'. Even so, there are a number of general guidelines which we can propose at this time based on our own work on VCM hazards at a BP plant in Port Talbot. These guidelines apply to any 'expert', whether technical, medical or scientific, working in the occupational health field. They also apply to those technical people working in industry who feel that there is a clear and immediate need for action on occupational health in their own industries.

- Try to work primarily with the men and women who are actually exposed to the health hazard. This does not mean that one should ignore other groups interested in occupational health. Clearly, both scientific and shop floor workers must seek the help and co-operation of management and government bodies interested in these problems. Management should be consulted and valuable information exchanged. The Factory Inspectorate and/or the Public Health Office should be approached. With the new powers invested in it by the Health and Safety at Work Act, the Factory Inspectorate

may prove to be a valuable partner for any groups seriously working to reduce health hazards in industry.

Liaison with the Trades Union involved is of paramount importance. For it is they who have experience of negotiating with management and they who have at their disposal, the services of the independent Centenary Institute of Occupational Health which specialises in the chemical analysis and medical evaluation of questionable materials.

● Remember that your main reason for being on the 'shop' floor is to exchange information and experience. The people on the shop floor can give you first hand knowledge of the processes they work with and the hazards that these processes involve. They can tell you how their plant/office actually works, not just how it is supposed to work. For your part you can help these men and women to understand the technical/medical explanation of the hazard and how to monitor and keep

the necessary records of the hazard.

● Unfortunately, even the introduction of reasonable health conditions is an issue which often involves conflicts with employers. Recently 5,000 men and women at the Shell/Chevron plant in California had to strike for 5 months just to have seven medical provisions written into their contract. This was done in the light of the fact that all the other major petrochemical companies in the United States had already agreed to medical provisions being written into their contracts. The scientist must be prepared to stand up in defence of working people. This may mean pressing their case in joint management/union committees or even standing up in court to put the facts as they see them. Two men in the United States, Dr Selikoff of Mount Sinai Hospital in New York and Dr Epstein, have actually done this.

● Be prepared to use the press and television to publicise your case. The BSSRS helped World in Action to do

the first exposé of the VCM problem in this country. Later we devoted 15 minutes of an Open Door programme (BBC2) to a discussion of the VCM issue.

● In cooperation with other scientific, production line, and office workers, press for the implementation by the government, management and trade unions of systematic pre-testing of industrial processes and materials for possible health hazards.

Clearly it is not enough for individual scientists to become involved in isolated local health hazard issues. There must be a coordinated body for scientists participating in the field of occupational health. This is precisely the role that the BSSRS has begun to play and hopes to develop systematically and comprehensively in the future. We cannot afford to finance teams of investigation or the much needed thorough long term research in this area. We hope, however, to be able to serve as a vital catalysing agent.

international news

MINISTERS from 24 countries, including Britain's Denis Howell, met in Paris last week at the first meeting of Environment Ministers convened by the Organisation for Economic Cooperation and Development (OECD). The ministers met to discuss several recommendations put forward by the environment group of the OECD on the formulation of rational and coherent environment policies throughout the OECD countries.

One of the concepts discussed at the recent meeting was in fact accepted in outline in 1972, namely the 'Polluter Pays Principle', which in effect means limiting state aid for pollution control to industry while making it conform to certain standards. This will then mean that goods made by polluting industry will be more expensive, as they have to pay for their own pollution control. The consumer, it is argued, will therefore prefer the cheaper goods made by non-polluting industry. Some countries have already incorporated the principle in their legislation, although, exceptionally, state aid may be allowed.

The ministers also discussed the OECD's proposed code of conduct for dealing with the problem of trans-frontier pollution. One of the main points of the code is that pollution exported to other countries must not exceed the levels permitted within the polluting country.

The most widely discussed instance

OECD urges environment policies

by Eleanor Lawrence

of this type of pollution, as far as Britain is concerned, is the sulphur dioxide from Britain and from continental Europe which ends up over Scandinavia as acid rain, with dire environmental consequences. The OECD is at present in the middle of an international survey of air pollution—the first such survey to use completely standardised monitoring methods—which should clarify this situation. Commenting after the meeting, Mr Howell said that Britain might have to reconsider her power-generating policy if the results of the survey showed that sulphur dioxide emissions from power stations were the 'culprit'.

The problem of trans-frontier pollution also raises the question of whether people affected have the same rights in the polluting countries' courts as would citizens of those countries in the same situation. But unfortunately, even the citizens of some countries find it extremely difficult to gain standing on matters of pollution in the courts, so that this might prove to be an empty privilege.

Complications and inequalities could also arise because of the fundamental difference between the judicial structures in the various countries—Europe by and large follows Roman law whereas in Britain there is the added complication of being able to bring prosecutions under common law, which operates on a precedent system rather than on the basis of published statutes.

There is also the problem of who exactly is liable to prosecution. If treaties for lower pollution had actually been signed between polluted and polluting countries, the defendant might well be the Government in the person of the Secretary of State for the Environment. Other problems would, of course, be the usual ones which bedevil pollution legislation generally, such as collecting sufficient data to make a case which will be accepted in the courts in the first place.

At present, if an article manufactured in Britain is sent abroad and proves to be harmful, it may well be the distributors in that country who are prosecuted and not the manufacturing company. This has happened in Australia in the case of thalidomide, marketed there by a subsidiary of Distillers Company Ltd.

The effects of pollution will be far less easy to define in practice than even the effects of a manufactured article, and there is the prospect of a real field day for the lawyers. □