

Book Reviews

Transport of Hazardous Materials. Proceedings of a Symposium held in London, December 1977, The Institution of Civil Engineers, 1978, £7.00.

It is difficult to take a balanced view about a subject which is as emotive as the "Transport of Hazardous Materials" but this publication resulting from the C.S.T.I. symposium has largely achieved that objective. In the opening address the aim of the Committee "to produce for the majority a sobering unease" is appositely stated by Air Marshall Sir Charles Pringle.

It is not always desirable, however, that the views should be too balanced — contentment brings stagnation — and since this symposium, the horrors of a large scale incident, as visualised by Mr. Ashton, have been fully enacted at a camping site in Spain.

In a modern complex technological society, anyone dreaming that overall planning can bring together a fragmented chemical industry, which in turn, is served by a fragmented transport industry, both of which industries depend for their economic and commercial survival on distribution to a still more fragmented number of customers, is living in cloud cuckoo land. The building of high rise flats may be considered as an analogy. Even if the major parts of the chemical industry were herded together in more concentrated areas than at present, no doubt subsequent experience would provide a reason for decentralisation with subsequent redistribution, and unless mankind is prepared to live in one heap on top of this giant industry, the problem of distribution to the customer will always remain. Pipelines may serve a useful function between large centres of industry, but the final transport and distribution of chemical products in relatively small quantities, upon which modern society is now so dependent, will remain a continuing problem into the foreseeable future. The problem will not disappear and will, more than likely, increase. This being the case, the publication of "Transport of Hazardous Materials" is timely and has brought together the state of the art in a compact readable form.

Every chapter in this work is informative and summarises present knowledge on each aspect of the subject so well, that it is difficult to write a constructive review. The discussion is constructively critical, and the best advice a reviewer can give is to suggest that interested parties should read the whole work.

The biggest advance in this country has been the provision, by UKHIS, of an identification and hazard information system. It will be sad, however, if "more than usual care, understanding and patience", called for by Mr. Dumster, does not eventually result in the adoption of an international system incorporating both action and properties codes. It is probably chasing Utopia to hope that all the many hazard information systems, outlined by Mr. Cumberland and Dr. Feates, will eventually be incorporated into one world-wide system, which

would reduce the proliferation and confusion feared by Mr. Anderson. The importance of a properties code should not be undervalued, and is highlighted in discussion by Dr. Rose, when considering the risks of pollution.

The importance of combining the expertise of the emergency services with specialist advice cannot be over emphasised and was again raised in discussion by Mr. Anderson. The fireman is his own expert in all aspects of fighting a simple fire involving non-hazardous chemicals, but where the fireman is required to give assistance at incidents involving hazardous material he is not always the complete expert. A multi-disciplinary approach is essential, and certainly the need for the urgent advice of the expert chemist on-the-spot is paramount.

The papers and discussion on the design of road vehicles and tankers, the complexities of which, certainly reinforce the view that the safe recovery of a damaged tanker is a multi-disciplinary exercise in expert recovery and not a job for the average garage breakdown contractor.

These two papers and discussion also bring out the most frightening aspect of the symposium, with contradictory comments from the authors and contributors. The incidence of tank ruptures is low compared to the number of tanker journeys, but it is not made clear whether this is due to the fact that tankers involved in accidents are strong enough to withstand additional stress or whether it is due to the self-preservation instincts of tanker drivers who may be taking extra care. Perhaps a better analysis of recorded incidents would reveal the best course for research to take. But, as has been pointed out elsewhere, the availability of accurate statistical information on incidents is not good.

Routing of hazardous loads, as expounded by Mr. Ashton, is attractive in theory and certainly seems to work near a concentrated industrial complex like Teeside, but the difficulties likely to be encountered by routing hazardous loads on a national scale, as raised by Mr. Shelbourne in discussion, have already been experienced during the County Surveyor's Society efforts to produce a satisfactory network for the movement of heavy vehicles. It is also important to remember that in an area like Teeside, expert advice is quickly available if an incident occurs but, as confirmed earlier in this review, in a rural area, away from a centre of chemical industry, expert advice can be long delayed. In the event of a large scale incident in such an area, the concentration of more hazardous loads on a particular route may increase the hazard rather than reduce it. One advantage of routing would be that at least the location of any incident on known routes would be identified more quickly.

Dr. Wilson's paper was designed "to provoke discussion". It certainly achieved that objective. "Little if anything can be learned from the serious accidents involving dangerous goods"! There are lessons to be learned from every incident however minor. The policeman whose shoes dissolved in a recent spillage of methylene chloride certainly will not walk into another spillage during a rescue attempt. The people in their cars who unsuccessfully attempted to re-start them in order to escape from a recent spillage of chlorine in America, certainly will only be doing it in another world. But

surely the emergency services and survivors will have learned that there comes a time when it is prudent to think laterally, abandon the car and run. The results of the oleum spillage on the M6 in 1971, when the tank was ruptured, were horrific, but then an overturned tanker carrying oleum, which tobogganed down the M5 on its side at high speed in 1976, did not rupture, because a safety barrier had been fastened on the sides of the tank; presumably because of previous experience.

The work is valuable, and authors, contributors to the discussion and organising committee are to be thanked for producing such an absorbing reference work.

G. STAPLETON

Toxic and Hazardous Waste Disposal, Vol. I, Processes for Stabilisation/Solidification by R.B. Pojasek (Editor), Ann Arbor Science Publishers Inc., 1979, £19.80.

This 400-page volume is the first of a series dealing with the options for disposal of toxic and hazardous waste. Eighteen chapters review processes for solidification or stabilisation. Following a general introduction to the series by the editor, which is based on US Environmental Protection Agency material and the need for careful matching of a treatment to the waste and its hazard, Thompson, Malone and Jones survey the available stabilisation technology. Although a useful survey of fixation vendors is mentioned, no reference is given to the original source, an important omission.

The next chapter deals in a superficial way with solidification of radioactive waste — a topic which hardly fits with the rest of the volume, since radioactive materials are normally dealt with by specialists outside the normal waste disposal industry. The information given could be dangerous if applied by those without considerable knowledge and experience of radioactivity. Curiously, UK work is completely ignored.

The following sections tend to deal with proprietary processes, written by the manufacturers' staff and read like sales brochures. Not surprisingly most processes seem perfect and of universal application. A little more critical comparison would have been most useful. I would find it most difficult to select a process from reading the book, particularly since most writers are reticent about costs.

An indication of the chapter at the top of the pages would help one to find a way through the text — the beginnings of chapters are singularly elusive if the index is not used.

A book I find hard to recommend at £19.80 although it could be useful as a reference volume on the library shelf. However, all the information is already available in sales brochures and EPA reports for those with the time to find it.

F.S. FEATES