chemicals, and all for less than £1.00. I would suggest it also as necessary reading for industrial medical officers, since as likely as not there will be a well thumbed copy circulating on the shop floor, perhaps to be produced at the next meeting of the joint safety and health committee. Forewarned is forearmed.

P. J. TAYLOR

Pathological Effects of Radio Waves. By M. S. Tolgskaya and Z. V. Gordon. Translated from Russian by Basil Haigh. (Pp. vi + 146; 38 figs; \$23.00) New York: Plenum Publishing Corporation. 1973.

The Western assessment of the hazards of radio waves to human beings has long been more lenient than that of workers in Eastern Europe. For this reason alone a monograph on the pathological effects of radio waves translated from Russian is a welcome addition to the literature in English, doubly so when it derives from the pen of such eminent Soviet authorities.

The first section of the book relates the authors' findings of gross and microscopical postmortem appearances in mice, rats, and rabbits irradiated with single lethal or repeated non-lethal doses of high intensity (40-100 mW/cm²; 2000-9000 V/m) radio waves ranging from medium frequency to extra-high frequency bands. They consider these consistent with hyperthermia in the lethal cases and with acclimatization in the non-lethal. All this accords with Western views.

In the introduction to the second section a series of tables sets out the functional changes which have been observed in living organisms exposed to low intensity radio waves. The literature is reviewed, including observations on man, stressing the effect on the nervous system and in particular the development of the 'diencephalic syndrome'. They subjected their animals to low intensity exposures (10 mW/cm²; 10-2250 V/m) and detail the findings. No gross morphological changes were seen and only occasional degenerative effects were observed by ordinary microscopical methods. Using neurohistological techniques, they demonstrated abundant but delicate changes in the nervous system and histochemistry revealed a decrease in ribonucleoprotein in tissue elements normally rich in this material. The extent of these changes diminished as frequency decreased. In a lengthy discussion it is argued that the changes found are largely the result of a reflex action which arises from the effects of the radiation on cutaneous and visceral sensory receptors, the purpose of which is to maintain homeostasis. This is in line with the Soviet view that the non-thermal impact of radio waves is on the central nervous system. The findings need verification in the West.

There have been many difficulties in the way of a rapprochement on this subject. We have relied on morphological findings and physical theory while the Eastern view has been a functional and behavioural one, but the work reported has a firm morphological basis. There has been a language difficulty, and though one is grateful for an apparently excellent English translation, there are reservations. Of 130 references, 98 are from Soviet sources and 62 are stated to be in Russian while quite a number of the remainder must also be. Only 19 are in

English and none is dated later than 1961. Western workers have also found it difficult to confirm Eastern work owing to inadequate information on experimental method. Unfortunately this volume, too, is not sufficiently communicative in this respect.

Turning to the publication itself, the black-and-white reproductions of photomicrographs appear dull and uninformative at first but careful scrutiny is rewarding. After all, there is no real substitute for the original slides demonstrated by their owners. There is no index, but it is not a textbook nor a work of reference, so perhaps this is excusable. There is an irritating habit of identifying radiation sometimes by frequency and sometimes by wavelength: the translator might have taken the opportunity to express all uniformly in terms of hertz.

The text is somewhat repetitive and the long descriptive sections are definitely only for the interested morphologist. The general review and discussion will appeal to a wider field, though some of that dealing with stress and adaptation might be considered outmoded here. Increasing numbers of workers in various disciplines are interesting themselves in physical environmental hazards but a good grounding in physiology seems essential for any real appreciation of the authors' thesis.

The authors state that the animals irradiated at low intensity remained clinically healthy. This accords with the Western view of harmlessness as well as the view of homeostasis. As there is increasing evidence in the West that low intensity radio waves do have some biological effect, perhaps this note of accord is an omen of eventual agreement as to their nature and importance. Those concerned with man in his occupational environment recognize clearly that homeostatic mechanisms allow him to survive in it.

JOHN RICH

Respiratory Diseases: Task Force Report on Problems, Research Approaches, Needs. The Lung Program, National Heart and Lung Institute, October 1972. (Pp. 243; no price stated.) Copies available from the U.S. Government Printing Office, Washington, D.C. 20402. 1973.

It is an unfortunate feature of the break-neck speed at which medical research gallops along in the United States that no consultant in even a comparatively small specialty like respiratory medicine can have a comprehensive knowledge of more than a tiny corner of his chosen field. This remarkable booklet helps to broaden his horizon by presenting the views of 189 biomedical scientists and one economist, who were called together to discuss the present state of knowledge or dearth of knowledge concerning particular respiratory problems and, taking note of their economic burden on the US community, to recommend specific and practicable steps which might lead to the prevention, treatment, or better understanding of these conditions.

The discussion of environmental and occupational disease is disappointingly humdrum. There seems no solution to the problem set by the long delay between exposure to many industrial hazards and the appearance of clinical disease. Where the response to the hazard is dramatic and early, e.g., biological enzymes or humidi-