Book Reviews


On September 10, 1959, a 25-year-old baker was admitted to the Mohammed V Hospital in Meknes, Morocco. Previously strong and healthy, he had, since the day before, been suffering from cramps in the calves of his legs and on waking up on that particular morning had been unable to stand unaided or to walk. Clinical examination showed bilateral flaccid paralysis of the muscles below the knees with loss of ankle jerks and loss of the plantar responses. The patient had no fever and the cerebro-spinal fluid was normal. Other patients began to arrive at the hospital showing similar symptoms —10 on the same day, 30 the following day. Within a week several hundred patients had been registered, either in health centres or in district dispensaries. During the following week, the town of Meknes alone accounted for 700 new cases, and so it was not surprising that at first a virus infection was suspected. However, in the town of Meknes, Moslems only were affected. No Jews or Christians had been stricken although the risk of contagion through cinemas, swimming pools, and markets was considerable. In many families everybody was affected except breast-fed babies. In a proportion of cases a gastro-intestinal phase characterized by nausea after meals and acute diarrhoea occurred. This led entire families to consider the possibility of food poisoning by an adulterated edible oil. In at least one family, part of a meal had been thrown away and this was eaten without hesitation by the dog who had subsequently suffered from a paralysis of the hind legs. This paralysis had occurred at the same time as the master had been admitted to hospital on account of a flaccid paralysis. We are forcibly reminded here of the advice of Osler to his students ‘Listen to the patient, he is telling you the diagnosis’.

Ultimately, 10,932 patients appeared, and the government of Morocco housed them in various towns. In addition, an appeal was made to the International Red Cross in Geneva for assistance. Doctors and physiotherapists came from many countries of the world to help and a proportion of these learned Arabic in order to understand their patients better. The report gives a thorough account of the medical, social, and scientific problems involved in the epidemic. The emphasis is on toxicology, neuropathophysiology, and clinical findings, and special chapters are devoted to an extensive discussion and critical evaluation of the effects of physiotherapy as well as to the social aspects of this widespread disaster. As Vice-President of the League of Red Cross Societies in Geneva, as Chief Delegate of the International Red Cross, and as Medical Adviser of the Moroccan Government respectively, the editors were actively engaged and held key positions in the action and they have included an account of the efforts and contributions of all participating organizations.

Pyramidal tract lesions occurred in 5% of cases in some groups and 10% in others. Naturally these spastic patients showed a much higher incidence of contractures. The establishment of rehabilitation centres in the various towns and the devotion to their job of physiotherapists, occupational therapists, nurses, doctors, and orthopaedic mechanics led to astonishing results. By June 1961 it was possible for the National Red Cross Societies to hand over treatment of those patients still unable to look after themselves to the Moroccan National Health Service. Could Dunant be alive today to read this monograph perhaps he would be astonished to find that the work of the Red Cross which he envisaged on the dreadful battlefield of Solferino, could reap rich rewards in times of peace as well as in times of war.

During the 60 years, 1899-1959, in at least 12 countries (the United States of America, Morocco, Germany, Switzerland, Holland, France, Yugoslavia, England, Wales, Egypt, India, and South Africa) the published cases of poisoning traceable to triaryl phosphates amount to more than 28,000. If we add to this an imaginary number of unpublished cases the massive unnecessary suffering endured amounts to a world tragedy. As in the case of the Jamaica ginger paralysis (16,000 cases), which occurred in the U.S.A. in 1930, the mass poisoning in Morocco (10,000 cases) in 1959 was due to contamination of food. Nobody knows why triorthocresylphosphate was added to the Jamaica ginger cocktail, but the contamination of Moroccan cooking oil with mineral oil was a deliberate fraudulent adulteration. On September 29, 1959 the Minister of Health for Morocco requested the Criminal Investigation Department to open a legal case against a certain dealer in order to discover the origin and source of the mineral oil found in the edible oil. Clandestine dens were discovered in Casablanca, Meknes, and Fez, where mixtures were made up of 215 litres of edible oil with 40 litres of mineral oil. All this was later confirmed by confessions of the criminals concerned. Ultimately, the source of the mineral oil was traced to U.S. military surplus stocks at the base at Nouaceur. In fact three different oils, each containing organic phosphorus compounds, were involved; all are used as components of aeroplane jet engine oils. Commercial triaryl phosphates are not homogeneous substances. They may
contain triorthocresylphosphate, trimetacresylphosphate, triparacresylphosphate, triphenylphosphate, 2,3 trixyllyphosphate, triorthocresylpyrophosphate, triortho-ethylphenylphosphate, and phenyl-orthocresyl-2,3 xylenlyphosphate. It can at once be seen how difficult it was in the Moroccan outbreak to solve the problem from the toxicological point of view. The three American oils were neither identical nor exclusively composed of TOCP. But worst of all, the adulteration was not confined to one and the same product nor carried out in equal proportion.

The book is beautifully produced and the typography pleasing. The English translation is excellent, and, as to misprints, nothing much worse than and for and is to be found. Adequate maps and diagrams are provided, and the photographure blocks of paralysed patients as well as of high-power histological pictures of nerve fibres and striated muscle are superb.

**Donald Hunter**


This book contains the papers read at a symposium on emotional stress arranged by Dr. Lennart Levi. Dr. Levi is an international authority on this subject who contributed to the World Psychiatric Association's recent symposium on anxiety in London. It is not surprising, therefore, that he collected a representative and expert group of contributors. The subject matter is divided into four parts: the psychological reactions to emotional stress, the physiological reactions, the psychophysiological reactions, and the clinical implications of emotional stress.

The first difficulty in this type of work is defining what is meant by emotional stress. The original use of the term 'stress' in clinical medicine was a mechanical concept: the stressor was the force applied and the stress or strain the result. Nowadays stress may mean either the force applied or the result of the force. A further difficulty is that emotional stresses may have different effects on different people. This is the theme of Professor Lazarus of the University of California, who points out the importance of intervening mental states between the exposure to emotional stress and the development of physiological effects. He shows that the end result depends upon what the particular stress means to that patient (appraisal). Altering the patient's appraisal changes the physiological response, e.g., the effect of a horror film can be changed from acute fear to indifference by reminding the observer that the film is only fantasy. A further variable is that the subject may decide to fight or flee; depending on which of these 'coping' processes is decided upon, one of two very different action patterns (fight or flight) may follow the same stimulus.

There are a number of papers on the ways the body reacts to stress: the mental appraisal of the stimulus is followed by hypothalamic activation. The hypothalamus activates both the ACTH mechanism and the autonomic nervous system. Autonomic activation affects reticular arousal mechanism and the complex vascular changes i.e., heart, muscles, intestines, and blood sugar that help the fight and flight reaction. These complicated changes in physiological patterns of activity are controlled by nerves and hormones: the feedbacks in this elaborate neuroendocrine control are so complex that it is difficult to know which mechanism is producing a given result, e.g., if the tachycardia of anxiety is mediated via neural or endocrine controls.

The symposium contains excellent work on the adrenergic mechanism and the role of ACTH in relation to stress. There is some very helpful advice on how to grade psychic stimuli by direct and indirect scaling methods.

In the clinical evaluation of the experimental work on emotional stress, military situations which involve the extremes of stress are the easiest readymade testing ground. There is excellent work from the Royal Swedish Air Force and Army on the application of emotional stress research but this did not preclude the investigation of stress in industrial situations which is of paramount importance in everyday life.

I found the book a very helpful review of current work on anxiety and an excellent source of reference to the literature on the subject.

**P. J. O'Connor**


The Analytical Chemistry of Industrial Poisons, by Morris B. Jacobs, was one of the first books in its field, and became a standard reference to those of us then learning, and developing, occupational hygiene. It was first published 20 years ago—a very long time in this discipline. The Analytical Toxicology of Industrial Inorganic Poisons is essentially an enlarged version of the earlier book.

To the occupational hygienist of today the first five chapters, on the need for, and the instruments used in, atmospheric sampling, are overdescriptive and in many ways uncritical, giving an optimistic view of some instruments and notably omitting size selective devices. There follow two chapters on dust evaluation, the first dealing in detail with counting techniques and the second with quartz analyses, where, surprising in this decade, X-ray diffraction yields pride of emphasis to petrographic and chemical techniques.

Morris Jacobs was best known for his analytical procedures, and these are given in detail in the later chapters. Many of them are in common use in our laboratories today, evidence of the continuing value of well-tried, and even traditional, methods. It is, however, unfortunate that they are presented in excessive detail, to the exclusion of analytical tools and techniques which are now freely available to the hygienist. While to some extent this must be the fate of any book giving analytical methods at a time when our concepts of analysis are changing, in this case the omissions are serious.