Correspondence

Neurophysiological studies on workers exposed to lead

Sir,—May I reply to the comments Triebig has made on our paper (1985;42:503). At no stage did we suggest, on the basis of our studies, that the biological occupational exposure limit for Pb-B of 70 µg/dl proposed in 1982 in the EEC for male workers should be lowered. We said, "The observations of the present study confirm the need for reappraisal of what is to be considered a safe blood lead concentration for the purposes of monitoring men and women at work." This opinion is shared by the World Health Organisation¹ and the Council of Ministers of the European Communities.²

Specific points that require comment are:

(1) I agree with Triebig as to the lack of consistency in the nerves affected. But this has been the pattern in many other studies and was clearly referred to in our paper. Perhaps paragraph 3 of p 176 of our paper should be looked at with greater care.

(2) Triebig states "The age (mean or distribution or both) of the lead exposed workers and the control group is not given." This was certainly considered as an important factor, and is clearly stated in our paper as follows, "The sets of data were tabulated into four age groups as a 2 × 4 table with unequal replication within each cell, and the difference in sample means were tested using 2-way orthogonal ANOVA."

(3) Triebig states "The authors performed no correlation analyses for the detection of possible dose-effect/relationships." In fact a dose effect correlation analysis was performed but no significant correlation between blood lead concentrations and nerve conduction velocities was observed. This has been the experience in other studies.³

(4) Triebig states "Blood lead concentrations (Pb-B) were estimated only once." Yes, it probably would be better to have "time weighted average" for Pb-B but this is not obligatory. Baker *et al* state "In most instances current and cumulative exposure indices correlated with effect parameters."⁴

(5) Triebig states "The authors give no information about the lower limits of the neurophysiological parameters measured." This is not correct. We cited the relevant publications giving normal values for Singaporean workers; it is suggested that these papers be referred to for detailed information. Further, Triebig's concern of lack of information on the incidence of abnormal nerve conduction velocities is not relevant. Our study compares the group average performances of the lead exposed group with a con-

trol group and, as such, the question of comparing incidence data does not arise.

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References

- ¹ World Health Organisation. *Recommended health-based limits in occupational exposure to heavy metals*. Geneva: WHO, 1980. (Technical report series No 647.)
- ² European Communities Health and Safety at Work: protection of workers exposed to lead. *Am Ind Hyg Assoc J* 1983;44:B-21-22.
- ³ Ashby JAS. A neurological and biochemical study of early lead poisoning. *Br J Ind Med* 1980;15:254-60.
- ⁴ Baker EL, Feldman RG, White RA, *et al*. Occupational lead neurotoxicity: a behavioural and electrophysiological evaluation. *Br J Ind Med* 1984;41:352-61.

Book reviews

Colour atlas of mesothelioma. By JSP Jones, C Lund, and HT Planteydt. (Pp 201; £49.) Lancaster: MTP Press Ltd, 1985.

This beautifully produced atlas is written by pathologists for their fellow pathologists to help them in making the pathological diagnosis of diffuse malignant mesothelioma, but its well written and concise text and beautiful colour illustrations will be appreciated by any physician with an interest in asbestos related diseases as well as by chest physicians and surgeons. There is an excellent account of the histopathology and cytology, followed by more than 60 pages of colour illustrations. There follow eight case histories, illustrated by radiographs as well as by photographs of the specimens and histopathology. Of interest is case No 8, a cystic mesothelioma of the peritoneum, an unusual type with a long course and the patient still alive and asymptomatic at the time of going to press. Only the occupational histories are rather brief: "the patient was a mechanic." This reveals little about possible exposure to asbestos during life. The account of the other forms of mesothelioma is also of interest and the method of work and addresses of the mesothelioma panels throughout the world are of practical value to all pathologists.

M L NEWHOUSE

Occupational biomechanics. By DB Chaffin and G Andersson (£32.70.) Bognor; John Wiley & Sons Ltd, 1984.

Aches, pains, and physical trauma resulting from inadequate or absent matching of the worker to the

task are common occurrences in industry and produce a massive annual loss of working time in addition to the discomfort and misery caused to the individual. Many are concerned in the diagnosis, treatment, and prevention of these injuries, from occupational physicians, orthopaedic surgeons, and physiologists to ergonomists, designers, engineers, and physicists. *Occupational Biomechanics* has something for all of these disciplines and the authors are to be congratulated on producing such an excellent overview of the subject. For those, such as myself, who are only partially mathematically literate, some of the chapters are hard work but persistence is rewarded and strongly recommended.

Students will profit from this book, although they should note the caveat below, and there are a useful set of review questions to aid the process of learning.

A potential criticism concerns coordinate reference frames; these are introduced at several places in the book, are generally difficult to interpret, and, with the exception of the chapter on vibration, are at variance with the ISO recommendations. This can lead only to confusion.

Libraries supporting a department concerned with biomechanics should buy this book.

DAVID ANTON

Contemporary Ergonomics. Edited by DJ Osborne. (Pp 246, £20.) London; Taylor and Francis, 1985.

This is a cheaply produced (apparently photoprinted from non-justified typescript) and expensively priced (£20) collection of 35 papers delivered at the 1985 conference of the Ergonomics Society. This disparity between quality and price may well signify that the publisher anticipated low sales figures; if so, I fear that he is unlikely to be proved wrong. The problem with the book is, I think, the same as the problem with "ergonomics"—lack of coherence. For example, "The relation of psychophysical strength testing to back pain" is included in the same section (Physiological Ergonomics) as "Thrill and anxiety in adventure leisure parks." In other sections a "A fuzzy model of a helmsman during a course changing task" and "identifying useability variability variables for teleshopping" may be found.

The quality of the papers is also variable. None is obviously excellent but some appear to report worthwhile research and may well make a genuine contribution to scholarship in their field. For example, O'Neill *et al* present a computer model to estimate the thermal state of a human body in different environmental and clothing conditions and Sutton and Towill present a mathematical model of the control activ-

ity of helming a ship. Some of the papers seem informed and interesting but are essentially discussions rather than directly useful—for example, Reason debates the nature of human error and presents some interesting speculation on the topic. Some of the papers, however, make it difficult for the reviewer to identify their virtues. Reinhardt-Rutland describes in a rather fragmentary way some of the visual problems of driving, speculates on some of the effects that visual illusions might have on the driver, but provides no empirical substantiation for the existence of any applied problem.

It is difficult to imagine who might wish to own this book given the diverse nature of the subject matter, but if you need to know how to develop sightline criteria for underground mining machinery or about the effect of glove design on manual dexterity in neutral and cold conditions, then this is the book for you.

ROGER GREEN

Virus-associated cancers in Africa. Edited by OA Williams, GT O'Connor, GB De-The, and CA Johnson. (Pp 770, £20.) Oxford; Oxford University Press, 1984. (IARC scientific publication No 63.)

This substantial bilingual (English and French) tome is devoted to the proceedings of a meeting on virus associated cancers in Africa held in Nairobi two or three years ago (I was unable to find the date of this small gathering).

It is a timely publication since there is now increasing and compelling evidence that hepatocellular carcinoma (primary liver cancer), carcinoma of the cervix, certain forms of lymphoma such as Burkitt's lymphoma and nasopharyngeal carcinoma, certain leukaemias, and the acquired immune deficiency syndrome (AIDS) are caused by or are closely associated with specific viruses.

The meeting was held before massive information was published on AIDS, although some reference is made to human T-lymphotropic retroviruses, particularly in relation to Kaposi's sarcoma in Zaire. An excellent summary is, however, appended. Other malignancies also receive attention—for example, human papilloma viruses and genital cancer, and, less convincingly, skin cancer and cytomegalovirus and Kaposi's sarcoma—but it is not surprising that over half of the 770 pages of the text are devoted to hepatitis B virus, chronic liver disease and primary liver cancer, and immunisation against hepatitis B, which is expected to prevent at least 80% of hepatocellular carcinoma.

The two criticisms of an otherwise useful publica-