thing to disagree with on every aspect of social medicine from adolescence to witchcraft.

L. G. NORMAN

Lavorazioni che Espongono All'Azione dei Glicoli, Nitroglicerina e Derivate. By Raffaele Giuliano and Mario Rafanelli. (Pp. 92; 9 figures). Milan: Tipo-Litografico I.N.A.I.L., for Istituto Nazionale per l'Assicurazione contro gli Infortuni sul Lavoro, Rome. 1962.

The glycols are the bivalent alcohols with the general formula $C_n. H_{2n}. (OH)_2$ and all readily polymerize. They readily form ethers, esters, and acetates and are thus very numerous, and their mixture is legion. Their toxicity varies much with their volatility. In adequate dosage most of these products may injure the liver and the kidneys. Some of them appear to form oxalates in the body, and cases of poisoning are known in which oxalate stones formed in the urinary tract.

Ethylene glycol is used as a substitute for glycerine or with it in the manufacture of electrical condensers. Ethylene chlorhydrate is used to accelerate the germination of seeds and in the manufacture of drugs such as novocaine. Another product in this group, ethylene oxide, is an intermediate in the manufacture of many organic products, including solvents, and as an additive in detergents.

In many of the industries in which these compounds are used the processes are complicated and intricate so that great care is needed to avoid accidents.

The nitroglycerine products are used as explosives and mixed with an earthy absorbent form dynamite. The speed of combustion of these materials is related to the proportion of inert base in use and to the state of division.

In manufacture the nitration of the glycerine must be carried out with extreme care. The vapour is toxic so that ventilation or even the use of masks with piped air direct to the workman may be desirable.

Acute psychoses or chronic mental changes may follow exposure. Various chronic symptoms affecting the digestive and respiratory tracts may be encountered.

G. C. PETHER

The Chemical Basis of Carcinogenic Activity. (No. 490 Monograph in the series of American Lectures in Living Chemistry.) By G. M. Badger. (Pp. xiii + 72; illustrated. $5.00.) Springfield, Illinois: Charles C. Thomas. 1962.

These lectures, according to the editor, have been conceived in order to "advance the newer knowledge of chemical medicine in the cause of clinical practice". The choice of Dr. Badger for this purpose could hardly have been bettered. He has succeeded in condensing a vast amount of data into 60 small pages of this monograph and in presenting them clearly and simply so that they can be understood by non-specialists. He describes in two chapters the historical background of the discovery of carcinogenic aromatic hydrocarbons, their mode of action, and the hazards of their presence in human environment; one chapter each is devoted to aromatic amines, azo-compounds, miscellaneous chemical carcinogens, and the significance of carcinogenic compounds. The chapters on carcinogenic hydrocarbons are particularly good, which is not surprising as the author himself has contributed effectively in this field during the last 25 years.

In the introduction the editor quotes, "Science moves but slowly, slowly, creeping on from point to point". The aptness of this quotation is contradicted by the progress in the field of chemical carcinogenesis which has taken place since this book was written, and reflects rather on the pace of publication. This excellent presentation of the problem stated in the title of the monograph is already out of date. In the field of aromatic amines and azo-dyes an important finding, that metabolic N-hydroxylation transforms these into local carcinogens, clarified this aspect of the complicated metabolism of these compounds. On the other hand, new light has been shed on the possible mechanism of carcinogenesis by the discovery of versatile carcinogenic activity among certain alkyl nitrosamines, alkyl nitrosourethanes, and in particular diazomethane itself.

That the one-carbon unit may be sufficient for carcinogenic action is bound to affect our views on the structural implication of carcinogens.

R. SCHOENTAL

Hygiene and Public Health. By H. D. Chalke. (Pp. 155; 36 figures. 6*s*.) London: The St. John Ambulance Association of the Order of St. John. 1962.

This is the authorized textbook of the St. John Ambulance Association, but its usefulness seems likely to extend beyond the purposes of that association since it provides a good introduction for all (not excluding medical students) who have an interest in the subjects with which it deals. The whole range is covered briefly but adequately. There are clear diagrams and well chosen illustrations. The claim is made, and we think that it is substantiated, that the book will help readers to think about the subject for themselves. Emphasis is placed on the need for education of the public in health matters, both for its immediate results and also as an aid in securing support for necessary reforms. The contents of this book should prove to be what its author claims that it is, "a guide to wise living and a healthy way of life". It should be of great help in giving instruction to those working in industry.

J. A. STRUTHERS

Survey of Work in Compressed Air, Auckland Harbour Bridge. Compiled by R. J. Rose. (Department of Health Special Report No. 6.) (Pp. 108; 33 figures + 44 tables) Wellington, New Zealand: The Medical Statistics Branch of the Department of Health. 1962.

During the period from May 1956 to October 1958, compressed air work in caissons was used for the founding of the six piers by which the Auckland Harbour Bridge is supported. This report gives in considerable detail a description and an analysis of the compressed air illness that resulted. It is a very valuable addition to the literature on compressed air work, since it displays not only a great deal of the raw statistical data but also extensive and sensible analyses of those data.

There are three main points of interest. The first is the extent to which this report, based on caisson work on the other side of the world, agrees with the report by Paton and Walder in 1954 on the construction of the Tyne tunnel and, indeed, it models itself to some extent on the earlier study. In both, a wide variability in susceptibility among the workers was found. The discovery of the phenomenon of acclimatization is fully substantiated; a very interesting and striking example of its importance is shown in Fig. 9, which records an abrupt outbreak of bends produced by an 11-day strike during which the workers lost their "immunity". The other points of resemblance, to mention only a few, were that the shift workers bore the brunt of the illness, and bends incidence rose as the working pressure rose. In a field of work bristling with difficulties, it is heartening that there should be such agreement from independent and widely separated undertakings.

The second point relates to the differences. At Auckland the work was in caissons, and, after preliminary attempts to decompress in the blister lock on the caisson, a "decanting" method of decompression was used; decanting is the method whereby the men are rapidly decompressed, transferred to another more spacious chamber, rapidly recompressed, and then decompressed slowly according to normal practice. This report represents, therefore, the first full account of the effectiveness of decanting. The principal differences from Newcastle seem to be (1) the overall bends rate was rather high, 3·3% in shift workers, for pressures over 18 lb.; (2) the onset of symptoms was appreciably quicker—nearly a third developed *during* the decompression in the decanting lock; (3) the symptoms were somewhat more difficult to relieve by recompression; and (4) the incidence of bends rose rather sharply for pressures over 45 p.s.i.

The report points to the need for caution in the use of decanting; although other factors at Auckland, such as CO_2 accumulation in the lock or exercise immediately before decompression, could contribute to raising the total bends rate, the early onset of symptoms, their resistance to treatment, and the high incidence at high pressures all suggest that bubbles were forming *during* the decanting process. Now that decanting is coming into general use, this report needs careful study by those in charge of the medical care of such work.

Thirdly, two cases of bone damage are described, one of frank necrosis following a single exposure to compressed air at a pressure of only 20 p.s.i. This emphasizes yet again the need for further study of this aspect of compressed air illness.

The report is not, of course, free from minor errors, but these are mostly trivial. There is, however, one more serious misconception (p. 83) regarding the calculation of decompression time. When it became necessary to lengthen the decompression time for the highest pressures, it was noticed at Auckland that in the tables the time in minutes allotted per pound of pressure blown off fell from 9½ minutes per lb. at 30 to 32 lb. to 8 minutes per lb. at 48 to 50 lb.; this was regarded as "illogical", and it is suggested that it represents an adjustment put into the tables to make them acceptable to industrial practice. This is not the case, and the tables are in fact the mathematical consequence of Haldane's theory, combined with the assumption (known, strictly speaking, to be wrong) that bends do not occur at pressures below 18 p.s.i. But a more important point is raised: the possibility that the underlying theory is insufficient. This doubt has been raised before; the Auckland experience, even though it is complicated by the use of decanting and of caissons, raises it again.

W. D. M. PATON

Correction

Dr. K. E. Malten states that, owing to difficulties in translation, the following errors appeared in Table 7 of the paper by L. B. Bourne and F. J. M. Milner on Polyester Resin Hazards (*Brit. J. industr. Med.*, **20**, 106):

"cyclohexamine peroxide" should read "cyclohexanone hydroperoxide"

"methyl-ethyl-ketone peroxide" should read "methyl-ethyl-ketone hydroperoxide"

"polyester hardener: 4 positives" should read "polyester resin: 5 positives".

Survey of Work in Compressed Air, Auckland Harbour Bridge

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Notes