

a condition of his employment. Those who do their work without complaint or apparent incapacity should be allowed to continue as they are. In the writer's experience it is best to give such men an explanation on the lines outlined above and to tell them to report back in the event of any worries or difficulties.

Air-locks During Transfusion

Q.—*What is the best way of preventing and removing air-locks during a drip transfusion?*

A.—Air-locks are prevented by expelling all the air from the transfusion apparatus before setting up the transfusion. After the giving set has been inserted, the clamp is tightly closed and the bottle suspended at a height of 3 to 4 ft. (1 metre) above the site selected for venepuncture. The set is then hung full length and the distal length of the rubber tubing held up in a "U" so that the needle tip comes just below the level of the drip counter. The clip is slowly opened, and not closed again until the blood has expelled all the air from the distal tubing. When the air has been expelled it is important that the drip chamber should remain vertical, particularly when inserting the set into another bottle, otherwise air may enter the distal tubing and create an air-lock.

Once an air-lock has developed the only satisfactory procedure is to disconnect the apparatus and expel the air by the method outlined above. Disconnecting the set or changing to a fresh one is greatly simplified, and carries no risk of dislodging the needle, if the transfusionist has taken the precaution of using, between the needle and the giving set proper, the short length of rubber tubing included with every giving set prepared by the National Transfusion Service.

Trichlorethylene in Industry

Q.—*What are the toxic effects of trichlorethylene ("trilene") when used in industry? In my experience, inhalation of the vapour produces a feeling of sleepiness which quickly passes off on exposure to fresh air after leaving work. Some workers complain of an embarrassing flushing of the face when enjoying the evening pint of beer. Can this flush be prevented?*

A.—An excellent account of the toxic effects of trichlorethylene in industry can be obtained in *Toxicity of Industrial Organic Solvents*, by Ethel Browning.¹ Degreasing operations are the most frequent cause of industrial intoxication in this country, and cases of acute poisoning usually arise during the cleaning of the apparatus. Acute poisoning is manifested by sudden loss of consciousness without any profound effect on the respiratory or vascular system. Recovery without after effect is usual if the sufferer is removed soon enough from the fumes, but death occasionally occurs when suitable precautions are not taken.

Chronic exposure to sublethal concentrations of trichlorethylene produces drowsiness and consequently a loss of alertness which may render the worker more liable to accidents. Not infrequently this drowsiness is not appreciated and may persist for some time after leaving work. Instances have been encountered of workers falling asleep in the 'bus and going on long past their stop, and of falling off their bicycles on the way home. This drowsiness during the working day is often associated with an inability to sleep at night. Vague nervous symptoms of a neurotic type are often encountered. Headaches, dyspepsia, ill-defined aches, and sometimes paraesthesiae are common.

It seems likely that trichlorethylene is fixed in some organ where it is metabolized into trichloroacetic acid, which is slowly excreted for several days after exposure.² This forms the basis of a test of exposure to trichlorethylene by the measurement of the trichloroacetic acid excretion in the urine.³

It is recognized that alcohol and trichlorethylene have a synergistic effect and that workers who have been exposed to trichlorethylene find that they become easily drunk if they indulge in alcohol in the evening. The symptom of

face flushing comes into this category. There is apparently no way of avoiding this effect except by reducing the exposure to trichlorethylene.

REFERENCES

- ¹ *Rep. industr. Hlth Res. Board (Lond.)*, No. 80, revised ed., 1953.
- ² Barrett, H. M., Cunningham, J. G., and Johnston, J. H. (1939). *J. industr. Hyg.*, 21, 479.
- ³ Powell, J. F. (1945). *Brit. J. industr. Med.*, 2, 142.

NOTES AND COMMENTS

Treatment of Leukoplakia of the Tongue.—Mr. P. A. LANE-ROBERTS (London, S.E.1) writes: I would suggest with deference that the answer to the question on treatment of leukoplakia of the tongue ("Any Questions?" June 5, p. 1336) is more optimistic in its tone than the facts justify. The patch has been steadily progressing in size from being "quite a small area to being almost the size of a halfpenny." Although the age of the patient is not stated, the suspicion arises that this may already be neoplastic and not merely hyperplastic; and this suspicion would be stronger if the patient were over the age of 45. In a recent short study of the records of Guy's Hospital 22 cases were found in which leukoplakia buccalis was associated with carcinoma of the oral cavity. Of these cases 6 had only recently (within 12 months) developed a patch or patches of leukoplakia, of which one was proved to be carcinomatous on examination by biopsy. It seemed that their leukoplakia was cancerous from the first. Of these cases none had a positive Wassermann reaction. The size of the lesion is of importance. A halfpenny measures 2.5 cm. Sturgis and Lund¹ found that 16 (22%) of 71 cases with lesions of more than 2.1 cm. in diameter developed cancer in the course of five years. Surely in a case of this nature biopsy is obligatory, and diathermy removal is justifiable.

OUR EXPERT writes: This criticism certainly demonstrates the truth of the statement in the answer that "some surgeons have always been inclined to more radical measures than others." With the great decrease in the numbers of late syphilitic lesions of the tongue, leukoplakia is nowadays nearly always due to other causes, but, apart from impressions, I do not know that there is any definite evidence that this either increases or diminishes the incidence of malignant change. One can "play for safety" and submit all cases to biopsy or adopt a more discriminating attitude, with, of course, the precautions mentioned in the answer. So many cases followed over the years have turned out to be benign (even sometimes despite a pathological report to the contrary) that I still think the more conservative attitude is justified.

REFERENCE

- ¹ Sturgis, S. H., and Lund, C. C. (1935). *New Engl. J. Med.*, 212, 7.

Corrections

At the end of Mr. W. S. Hanna's letter on undergraduate education (*Journal*, June 19, p. 1438) his address was given as Ballymena, Eire. This should, of course, have read Ballymena, N. Ireland.

The honorary degree which Sir Rudolph Peters, F.R.S., is to receive on November 26 is that of Doctor of Science of London University, not of Oxford (*Journal*, June 19, p. 1448).

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