

most severe degree of massive fibrosis and higher than the severe cases of non-industrial emphysema which were examined (table XIII, p. 241). These figures appear most intriguing but are not discussed at all in relation to lung pathology. The authors may have missed their possible important significance. Can these disturbances be the counterpart of focal emphysema, which, of the cases examined, would be expected to have the highest incidence in this group? The only other case which equalled such high resting ventilation was a control case (No. 201) of lung fibrosis. This man has since died of honeycomb lungs, a condition with some similarity to severe focal emphysema, in respect of the kind of air spaces which are dilated. Another case of honeycomb lung, No. 202, had normal resting ventilation but a high exercise ventilation (the diffuse fibrosis in honeycomb lung would account for the additional feature of reduced carbon-monoxide uptake).

There would be intense dissatisfaction amongst miners and, indeed, injustice, if those responsible for administering industrial insurance based their policy on the view that "simple pneumoconiosis has a relatively small effect but does accentuate the exertional breathlessness that normally comes on with age" (p. 215) unless, at the same time, it is recognized that there may be many exceptions to this generalization, especially at the age of 55 and over.

I would like to emphasize one of Gilson and Hugh-Jones's conclusions which is present in the text and, I believe, so important that it should also have been in the summary, that "the scatter (of exertion dyspnoea) about the mean of age/*x*-ray group is such that direct assessment of exertional dyspnoea is necessary when assessing individuals" (p. 99). Your leading article, when referring to a paper on pneumoconiosis of which I was an author,² omitted to quote two relevant passages: "A surprising amount of disease is sometimes present when radiographs show little abnormality," and: "The degree of this (focal) emphysema could not, in general, be assessed accurately by radiology."—I am, etc.,

Cardiff.

J. GOUGH.

REFERENCES

- 1 Gilson, J. C., and Hugh-Jones, P., with Oidham, P. D., and Meade, F., *Spec. Rep. Ser. med. Res. Coun. (Lond.)*, 1955, 290.
- 2 Gough, J., James, W. R. L., and Wentworth, J. E., *J. Fac. Radiol. (Lond.)*, 1949, 1, 28.

Acute Sore Throat

SIR.—Dr. Joyce B. Burke's recent report on the most effective treatment of the acute sore throat (*Journal*, March 10, p. 538) should be studied in conjunction with the report by Dr. P. A. L. Chapple and his colleagues on the control of acute throat infections in children awaiting tonsillectomy (*Journal*, March 31, p. 705), and the annotation in the same issue on the use of sulphonamides and antibiotics in measles (p. 734).

The doctors at St. Paul's Cray noted that patients receiving penicillin were more comfortable in three days, although for reasons unknown this only applied to those over 5 years of age. Only 45% of cases had positive throat swabs for pathogenic bacteria. All penicillin-treated cases became negative in three days, yet the sulphonamide-treated group, who remained in the majority positive to throat swabbing, recovered just as quickly. Moreover, 21% of penicillin-treated cases and 29% of sulphonamide-treated cases were again positive to throat swabbing when they were recovered ten to fourteen days later. With these facts in mind, are we sure that the bacteria found in these cases was the cause of the disease? Dr. J. B. Burke reports that four months' sulphonamide prophylaxis greatly reduces the incidence of acute throat infection, but has no effect on the tonsillar gland enlargement, the troublesome nasal catarrh, night cough, restlessness, anorexia, and nervousness of these children. Weight losses and gains were not affected. These symptoms of general debility are of most concern to both parents and family doctor, and it is the writer's impression that they are aggravated by prolonged antibacterial therapy. It is significant that the *B.M.J.* annotation reports that antibacterial measures appeared to cause more complications in measles than in those who were not so controlled. I have proposed elsewhere¹ that the bacterial throat flora are not the basic cause of disease, although they have a role

in promoting inflammatory reactions. With the recent discovery of the A.P.C. viruses² we may be on the threshold of a new conception of acute upper respiratory tract infection wherein both virus and bacteria are implicated. Professor Hans Selye's work on stress emphasizes the role of the host's reactions in causing an inflammatory episode quite independently of pathogenic organisms.

I feel that our present approach to the acute infections of the respiratory tract is out of date and too dependent on the bacteriological laboratory. We shall not achieve a sensible and practical policy in the management of catarrhal children, the control of inflammatory foci in the upper respiratory tract, or the selective use of tonsillectomy until we have clarified our conception of the host-bacterium-virus relationship and checked our conceptions against all the awkward facts which stare at us from the bedside of the sick.—I am, etc.,

P. D. MULKERN.

Romford, Essex.

REFERENCES

- 1 Mulhern, P. D., *College of General Practitioners Research Newsletter*, 1955, No. 10, p. 12.
- 2 Zaiman, E., Balducci, D., and Tyrrell, D. A. J., *Lancet*, 1955, 2, 595.

Lung Cancer

SIR.—As one who has been virtually a non-smoker, and who for the last 20 years has advocated a possible relationship between smoking and lung cancer, may I be allowed to draw attention to another insidious potential cause?

The curve of incidence of lung cancer over the last 20 years has, year by year, progressively drawn away from that of tobacco consumption. It would appear that we must look for some other factor which might have played a progressive role over these years. Twenty years ago it was rare to meet an individual who had been *x*-rayed, but now it would be hard to find one who has not; nearly all of them have had *x*-rays through one area—the lungs. American statisticians and later our own Dr. Doll and Professor Bradford Hill have shown that there is a greater amount of lung cancer among smokers, but the spectacular increase in incidence over recent years (after correction of figures for differential diagnosis) may be due to the additive effect of *x*-rays, themselves known to be carcinogenic. Berenblum¹ has demonstrated a two-stage mechanism of carcinogenesis whereby a co-carcinogen (which, shall we say, may be present in tobacco tar) may cause a latent change in a cell, following which a small amount of a second agent (another constituent of tobacco, or *x*-rays?) causes the cancer to develop. I think that a large proportion of the lung cancer cases would be found, on interrogation, to have had chest *x*-rays during the last 20 years.

In this respect it is very significant to note that an American survey² shows that the incidence of leukaemia (blood cancer) ratio for the general public, doctors, fluoroscopists is 1:4:9. It appears that we may be paying dearly for the modern *dernier cri* of universal *x*-rays.—I am, etc.,

Oxford.

H. S. BURTON.

REFERENCES

- 1 Berenblum, I., and Shubik, P., *Brit. J. Cancer*, 1949, 3, 384.
- 2 Peller, S., and Pick, P., *J. Amer. med. Ass.*, 1951, 147, 893.

Enuresis

SIR.—I was interested to read the contribution by Dr. W. N. Leak (*Journal*, April 7, p. 801). He refers to the effect of exercise in the production of water retention and subsequent nocturnal polyuria, and suggests that this is a manifestation of subclinical cardiac failure.

I should like to draw attention to the work of Verney,¹ who showed that in dogs diuresis was inhibited by exercise and emotional stimuli and that such inhibition could be largely abolished by removal of the neurohypophysis. Verney stressed the importance of emotion and the emotional concomitant of exercise as the stimuli for production of the anti-diuretic hormone. It need hardly be said that children, unlike adults, indulge in exercise solely for the excitement of the game in which they are participating.

It is possible that in the "emotionally disturbed" child and in the child who indulges in much activity there is a