

and met with considerable support. Mr. Evans's cases averaged five weeks' stay in hospital. Similar successes can be easily repeated by anyone, the only criterion for success being the use of a nail and plate of sufficient rigidity not to bend on weight-bearing without the support of a united fracture.

The encouraging results of this procedure have directed attention to similar opportunities in the sub-capital fracture, and similar figures can be achieved in *selected* cases. The safety of early weight-bearing in sub-capital fractures is dependent on the successful insertion of a long oblique pin tangential to the calcar femorale and resting on it, so that pressure on the head will impact the fracture and not cause the nail to drop in the neck so that it touches its lower surface, inevitably carrying the head with it. Certain technical difficulties will prevent one always achieving this ideal position, and in these cases weight-bearing can be delayed for a few weeks until the pin is supported by some union of the fracture. It is seldom necessary to delay beyond six weeks.—I am, etc.,

London, W.1.

J. G. BONNIN.

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- 2 *Proc. roy. Soc. Med.*, 1953, 46, 106.

### Placenta Praevia

SIR,—Mr. T. Wilson Roddie (*Journal*, April 21, p. 890) has reported an impressively large number of patients treated in the Kandang Kerbau Hospital, Singapore, during two years, an experience which could not be equalled in this country. He has pointed out how poverty and ignorance operate to the patient's disadvantage. Likewise he has stressed the great responsibility that rests on the attendant who first sees the patient.

Fortunately, in the Area Department of Obstetrics at Oxford there has been developed very close co-operation between midwives, doctors, and obstetricians. This teamwork enables us to report 148 consecutive cases of proved placenta praevia, treated in the Radcliffe Infirmary and Churchill Hospital from 1948 to 1955 inclusive, with no maternal death. The uncorrected foetal mortality rate was 8.5%.—I am, etc.,

Oxford.

E. ARTHUR WILLIAMS.

### Pulmonary Function in Pneumoconiosis

SIR,—Your leading article (*Journal*, April 7, p. 790), on the report on lung function in coalworkers' pneumoconiosis, by Gilson and Hugh-Jones,<sup>1</sup> rightly states that their findings have an important bearing upon assessment for industrial injury benefit. Doctors who are concerned with the latter, however, may be discouraged from reading through this important report because of its highly complicated mathematics. If, however, they content themselves merely with accepting the summary and also the Medical Research Council's statement in the preface, they will be incompletely informed. The conclusion in the preface that "simple pneumoconiosis causes only slight increase of breathlessness over that which develops even in normal men as they grow older" applies to limited age groups. The report does not deal with groups over the average age of 55, and the authors agree that the results obtained for younger men cannot be extrapolated to older groups (p. 132). Moreover, the broad generalization implying a very benign nature to simple pneumoconiosis is not even justified on the evidence for the age of 55, as can be seen from the following extract. The investigation started with a random sample of miners in different age groups, with different x-ray categories and from different sorts of mines. The results obtained were apparently acceptable to the authors except in regard to category 3 simple pneumoconiosis at the age of 55 (p. 98). They did not appear to trust the findings in this group as being representative, as the disability was unexpectedly high. The group consisted of 8 men, 6 of whom had been certified by a pneumoconiosis panel, and 7 out of the 8 had left mining; 4 were engaged in other occupations and 3 were unemployed (table II, p. 230). These then were all miners

who had presumably been disabled by simple pneumoconiosis to the extent that they were no longer employed in the mines. Men used as normal controls showed a reduction of maximum voluntary ventilation from 150 l./min. at the age of 25 to 118 at the age of 55—i.e., a loss of 32 l./min.—but these category 3 cases dropped to 81, an additional loss of 37 l./min. The authors' dyspnoeic index followed suit, dropping from 18 to 24 in the normal with increase of age and down to 53 in the category 3 cases (table V, p. 233). In this group of miners, therefore, the loss of respiratory function due to occupation more than doubled the effects of age. The authors, in coming to their general conclusions in respect of category 3, however, "amalgamated" a number of men from an unspecified pit B and arrived at what they consider a more likely average, but these additional men were all working miners. Were they the hardy survivors of a bigger group? The authors claim that the subjects in this inquiry were selected at random; this does not hold for the amalgamated category 3 aged 55. We are not told whether pit B is a mine which has a high incidence of certified pneumoconiosis or even what kind of coal it produces. It would have been more accurate to conclude that some coal-miners in this investigation with category 3 at the age of 55 showed little apparent effect, but, on the other hand, others showed a considerable reduction of lung function and of a degree that is likely to have prevented them from working in the mines. This contrast shows that reliance should not be placed on radiology for assessing lung damage within category 3.

It is stated (p. 100) that category 3 aged 55 has an unusually high value for maximum voluntary ventilation and diaphragm movement. This, however, is contradicted by the figures 26 and 29 referred to, and this error must be corrected. From information elsewhere in the report, it can be deduced that the figures are correct and the statement wrong.

The respiratory functions in category 1/2 at the age 55 show a very big scatter, and one-quarter of the cases had marked reduction of maximum voluntary ventilation (p. 97). These individuals are lost sight of in the three-dimensional type of histogram used (p. 100), but in real life such miners are not helped by the fact that the majority of their group are not disabled. Radiology should obviously not be relied on to decide lung damage within this group.

The authors criticize the view, based on pathological findings, that focal emphysema may cause dyspnoea in coal-miners. They state correctly that this type of emphysema is more common and more severe in "elderly" subjects, but they can scarcely claim to have adequate information to oppose this view since the upper average age group they examined was 55. Having failed to find evidence of more than slight emphysema in this age group, they make the suggestion that pathologists see focal emphysema brought into prominence by the large section technique of Gough and Wentworth, and they suggest that this is due to the reduction of retractility of the lung in the elderly. This might be taken to imply that the lungs, as seen in the large sections, are artificially enlarged. That this is not so can be shown by superimposing sections on corresponding radiographs taken during life and comparing the height of the lungs in the two. After allowing for geometric enlargement in radiographs, it can be seen that the lungs, as represented in the large section, are not over expanded.

Will Drs. Gilson and Hugh-Jones say what changes they think are present in the lungs of men aged 55 in the main experiment showing category 3 to account for a dyspnoeic index more than double that of the normal for that age, and clinical dyspnoea greater than in category B massive fibrosis? They say it is not due to emphysema and that the pneumoconiosis has a relatively small effect, but they do not offer anything positive and they cannot escape from an explanation by "amalgamating" these disabled men with a number of working miners. Pathologists find the highest incidence of focal emphysema in age groups 55 and above. I would not expect to find the same functional changes in focal emphysema as in ordinary hypertrophic emphysema. Focal emphysema consists of dilated air spaces interposed between the terminal bronchioles and the alveoli, and this may interfere with lung function in a different fashion from that in ordinary hypertrophic emphysema.

The following observation may possibly be relevant. Category 3 simple pneumoconiosis at the age of 55 had the highest resting ventilation (table IV, p. 232) and the highest exercise ventilation (table V, p. 233) of all the men examined, higher than the

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,<sup>2</sup> 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.

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**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 elsewhere<sup>1</sup> 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. viruses<sup>2</sup> 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.

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**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. Berenblum<sup>1</sup> 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 survey<sup>2</sup> 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.

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**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,<sup>1</sup> 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