of the case? It must be admitted that not even the presence of pus cells and organisms in the cerebro-spinal fluid are sufficient evidence for a diagnosis of meningitis, as it has been proved that the same may be found in cases of uncomplicated abscess of the brain or in extradural abscess. In the absence of *post-mortem* evidence we cannot be certain that there existed a true meningitis, but the important practical point is that, even when all the classical signs of meningitis are fully developed and are confirmed by the finding of pus cells and organisms in the cerebro-spinal fluid, there is still a possibility of recovery under energetic surgical treatment. No vaccines were used in the treatment of this case.

The Milroy Lectures

ON

THE HYGIENIC ASPECT OF THE COAL-MINING INDUSTRY IN THE UNITED KINGDOM.

DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

By FRANK SHUFFLEBOTHAM, M.A.,

M.D.CANTAB., J.P.,

MEDICAL REFEREE UNDER THE WORKMEN'S COMPENSATION ACT FOR THE NORTH STAFFORDSHIRE DISTRICT.

LECTURE III.

DUST.

FIBROID lung (such as potters suffer from) is rare amongst coal-miners, and anthracosis does not seem to entail disablement. But while coal dust does not seem to be an irritant of the lung the shale dust and flue dust used in mines to dilute coal dust, with a view to prevent explosions, owing to their siliceous character might adversely affect the coal-miner's lungs. The spraying of mines to render the coal dust less liable to explosion might cause a humidity which, when added to a high temperature and darkness, might be deleterious to the coal-miner's health and prove favourable to the development of ankylostomiasis, now unknown in British coal mines. More than two hundred years ago the importance of dust as one of the principal causes of industrial diseases was recognized by Ramazini, who at that time was the professor of medicine at Modena University. In this country, however, the subject attracted little attention until the middle of the nineteenth century, when the researches of Dr. Greenhow, of the Middlesex Hospital, placed it upon a scientific basis. Other observers, notably Arlidge, Haldane, and Sir Thomas Oliver, have made valuable contributions to the subject. In coal mines siliceous dust is produced when new workings are opened up and when new roadways are cut out, but in well established mines the vast majority of workers only came in contact with coal dust.

The Coal Mines Regulation Act has not only been to some extent instrumental in diminishing the number of accidents in mines, but it has done something equally important in another direction. Prior to the passing of this Act, one of the principal diseases from which miners suffered was fibrosis of the lungs, or miner's phthisis, and Dr. Greenhow's collection of miners' lungs in the museum of the Middlesex Hospital shows that this disease was in many cases the actual cause of death. The statistics of the Registrar-General also show that the mortality figure for miners from diseases of the respiratory system was at one time very much greater than it is now. At the present time in Great Britain fibrosis of the lung among miners can be said to be practically non-existent, and its disappearance can be wholly attributed to the enforced improvements in the ventilation of mines, to improvements in illumination, and to shorter working hours. The evidence given before the Departmental Committee on Industrial Diseases, which sat in 1906 and 1907, was practically unanimous on these points. Professor Murray, of Manchester, who for many years was consulting physician to the North of England United Coalowners' Association, and also physician to the Royal Victoria Infirmary,

Newcastle-upon-Tyne, stated that he had never seen a case of fibrosis of the lungs in miners, and Sir Thomas Oliver said that there had not been a case of miner's phthisis in the Newcastle-upon-Tyne Royal Infirmary for more than ten years; similar evidence was given by other medical men with large experience of colliery practice. Though fibroid phthisis does not affect coal-miners at the present time in this country, still anthracosis, or infiltration of the lung with coal dust, is widely found. I have already mentioned that workers who are employed in making new roads in the mine may be exposed to the inhalation of siliceous dust, and in the ganister mines of Durham, Yorkshire, and other counties the irritating nature of the rock dust produces fibrosis of an aggravated type.

TUBERCULOSIS AMONG COAL-MINERS.

Tuberculosis of the lungs is not so commonly found among coal-miners as among many other occupations, and the statistics of the Registrar-General with regard to mortality from this cause show that while the mortality figure for all occupied males in England and Wales is 175, that for the coal-miner is only 85; metalliferous miners, however, are not so fortunate in this respect, the figure for the Cornish tin-miner being 838 (the highest on the list of all occupations), the copper-miner 501, and the lead-miner 344. With regard to other diseases of the respiratory system, while the mortality figure for all occupied males is 78, that for the coal-miner is 140. The copper-miner heads the list with 665, the tin-miner coming second with a mortality figure of 653, while the lead-miner has a mortality figure of 187; the potter and the Sheffield grinder—frequent victims of this disease—are represented by mortality figures of 361 and 173 respectively.

In the United States great attention has been paid to the subject of tuberculosis among coal-miners by Wainwright and Nicholls, whose experience is drawn from observations made in a coal-mining centre with a population of about 100,000 people. They have found that, taking the percentage of deaths from all lung diseases among miners as 100, the following table shows the percentage of the coal-miners and the other occupied males in the district:

	All Lung Diseases.	Tuberculosis of the Lungs.	Asthma	Pneumonia.
Coal-miners	100	14	29	42
Other occupied males	114	41	7	54

They hold that "miner's asthma" is clinically chronic bronchitis and emphysema, and that it is associated with epithelial irritation and thickening of the connective tissue and consequent loss of elasticity.

It has been asserted by many authorities that coal dust has germicidal properties, and in favour of this view we have the experience of colliery surgeons who record that extensive wounds full of coal dust heal rapidly, and even lacerated wounds sustained through injuries in coal mines can be stitched up without hesitation; veterinary surgeons have similar experience in the treatment of pit ponies. As a result of their experiments Wainwright and Nicholls dismissed the theory that coal dust possesses any germicidal property; they believe that coal dust in the lungs does exert a real protective influence against the tubercle bacilli, but that the reduced mortality from tuberculosis is not due to any antiseptic property of the coal dust but to its stimulating effect on the lung tissue and increased growth of connective tissue. Among other experiments they kept guinea-pigs for two months in an atmosphere of coal dust and afterwards a pure culture of tubercle bacilli was injected. Animals were treated similarly who had not been subjected to the coal dust. They found that in the latter cases tubercle was found in the lung on *post-mortem* examination, but that in the former case no tubercles could be detected. Nicholls advances the theory that the protective influence of the coal dust is due to the action of the soluble calcium salts which form a large proportion of the ash of the coal dust.

Ganister Lung.

The mining of ganister—a hard, close-grained siliceous stone obtained from under the coal seam—is carried out in

this country in Yorkshire, Durham, and North and South Wales. There are eighteen mines employing 600 workmen underground, and the mortality due to pulmonary disease is very high. Ganister miners are subject to fibrosis of the lung on account of the irritation of the siliceous particles which form a large percentage of the mineral. In the process of mining ganister the atmosphere at the working face becomes charged with fine dust as a result of drilling and blasting, and the regulations require the workings to be sprayed so as to mitigate the evil.

The mortality statistics for this industry have been prepared by the Home Office officials and published in the Annual Report of the Chief Inspector of Factories for 1912. The pathology of fibrosis of the lung due to the inhalation of ganister dust has been investigated by Andrews, whose report was published in 1900.

Miner's Phthisis in Cornwall.

The mortality from lung diseases among the Cornish miners has been known to be very high for many years past. The statistics of the Registrar-General during the years 1900 to 1902 show a large preponderance of deaths from lung disease among the miners of Cornwall. Between the ages of 35 and 45 there were 33.2 deaths per 1,000 living, while the statistics taken from all the coal-miners employed in England and Wales only amounted to 3.5 per 1,000, and for ironstone-miners 3.2, while the figure for occupied males of England and Wales was 5.9 per 1,000. Between the ages of 45 and 55, 32.2 per 1,000 of Cornish miners died from this cause, compared with 7.8 per 1,000 among coal-miners, 6.5 per 1,000 among ironstone-miners, and 8.6 per 1,000 among all occupied males. Between the ages of 55 and 65 the figure is 42.6 per 1,000 for Cornish miners, 18.7 for coal-miners, and 13 per 1,000 for ironstone-miners.

The very large mortality from lung diseases among the Cornish miners, as compared with coal and ironstone miners who work in different parts of England and Wales, especially between the ages of 35 and 45, was brought to the notice of the Government, with the result that a committee, of which Dr. Haldane was the chairman, was appointed to inquire into the health of miners employed in Cornwall. An investigation of the cause of death of all miners who had died in the Redruth district during the three years 1900 to 1902 and who had been employed in the mines since boyhood showed that the causes of death among men who had at any time worked machine drills was as follows:

Cause of Death.	Number.	Average Age at Death.
Lung diseases ...	133	37.2 years.
Other causes ...	9	
	142	

Of these men, 63 had worked in mines abroad only, 41 both in Cornwall and abroad, and 38 in Cornwall only. Among men who had never worked machine drills lung diseases were responsible for 120 deaths, while 59 died from other causes. The average age at death among these men was 53 years.

From these figures it is seen that exposure to dust from working machine drills not only predisposes to lung trouble but also to an early death, and it is surprising that the difference in the average age at death should be so great as 16 years. The report of the committee states that the death-rate among machine drill men from respiratory diseases was about 15 times, and their total death-rate about 8 times that for the average of occupied males in this country; or, to make another comparison, the death-rate among machine men from respiratory diseases was about 30 times, and the total death-rate about 10 times as great as that among colliers or ironstone-miners of the same age.

The miner's phthisis found in Cornwall is caused by the silica-laden atmosphere of the mine; the symptoms and course of the disease are exactly the same as those of potter's asthma or stonemason's phthisis, but the mortality tables appear to indicate that the risk to life on account of respiratory diseases among tin-miners is greater

than that of any other occupation, even when the workers are exposed to the inhalation of siliceous dust. The mortality figures for file-makers, potters, scissor-makers, and tin-miners as taken from the Registrar-General's report, which was published in 1908, are as follows:

Occupation.	Phthisis and Diseases of Respiratory System.	Phthisis.	Diseases of Respiratory System.	Diseases of the Circulatory System.
File-makers ...	712	387	325	198
Potters ...	758	285	473	219
Scissor-makers ...	848	533	315	215
Tin-miners ...	1,557	816	741	154

The result of this inquiry was to prove that the excessive death-rate from lung diseases was due to the inhalation of the stone dust. The committee expressed the opinion that the dust produced by rock drills could easily be prevented by a very small jet of water, and that the dust from blasting the close ends of the mine could be laid by a powerful jet of water and air. Regulations were introduced immediately after this report to deal with this question, and as a result there have certainly been some improvements in this respect, although it cannot be expected that the mortality statistics for a disease which is very insidious in its onset and chronic in its course can show a great improvement in so short a time as eight or ten years.

Miner's Phthisis in the Transvaal.

Sir Thomas Oliver was the first physician to draw attention to the serious lung trouble which prevailed in the Transvaal mines; his attention was directed to this subject through the number of miners who returned from the Transvaal to Northumberland and Durham mines after the conclusion of the South African war suffering from a disease which could not be distinguished as regards either symptoms or physical signs from pneumoconiosis. He attributed the condition to inhalation of rock dust while working in the mines on the Rand. The question was brought to the notice of the South African Government, which appointed a Commission. Its report, published in 1912, states that out of 3,462 underground miners who were specially examined and their history obtained, no fewer than 31.6 per cent. were affected with miner's phthisis, and it was estimated that out of 11,400, the total number of miners in South Africa, the number affected could not be far from 3,600. Among machine drillers, 47.5 per cent. were victims of the disease, while among those who had never done machine drilling 21 per cent. were affected. The inquiry was confined to European workers, and there was no investigation made into the health of natives or coloured workers. Although 31.6 per cent. of the men examined were suffering from miner's phthisis at the time of the examination, it was estimated that 90 per cent. of the workers would eventually contract the disease. It was found that amongst European miners tuberculosis existed to the extent of 3.6 per cent. amongst those who were not affected by pneumoconiosis, and that of those affected by the latter disease 10 per cent. of them were tuberculous.

Symptoms and Physical Signs of Fibroid Lung.

As a rule, shortness of breath is the first symptom of this disease, and the patient may find that dyspnoea easily comes on after slight exertion. In the early stages the patient is liable to a dry winter cough, always worse in the early morning, and is generally paroxysmal in character. The patient may be subject to frequent bronchial colds, when there will be the ordinary expectoration of bronchitis. As the disease proceeds the succeeding attacks become slowly and progressively more severe in character.

Examination of the chest in the early stages shows very little more than wheezing and symptoms of bronchitis, but as the disease advances emphysema becomes more prominent. In cases of moderate severity there is dullness, which is most commonly found at the bases of the lungs. The course of fibroid lung may be apyrexial for many years. A patient suffering from fibroid lung is in

many cases pale and anaemic, and there is generally clubbing of the finger-nails. In cases complicated by tuberculosis the expectoration contains tubercle bacilli, there is pyrexia, night sweatings, and progressive emaciation. In the final stages of the disease symptoms arise which are directly due to dilatation of the right side of the heart.

The diagnosis of fibroid lung from bronchitis of a mild form is not easy in the early stages. The symptom which is of the greatest importance is the shortness of breath, which in the early stage is out of all proportion to the amount of consolidation, as well as to the symptoms which would be associated in an ordinary case of chronic bronchitis. In more advanced cases the physician must carefully consider the history of the case—the chronic nature of the disease as well as the nature of the occupation—before finally deciding that the symptoms are due to fibroid lung, and this diagnosis will be confirmed when he finds definite signs of consolidation of the lung. The differential diagnosis of fibroid lung from ordinary cases of chronic bronchitis and emphysema is made when evidence is found of dullness on percussion and auscultation. In addition, we may find that there is a little increase in the body temperature with chronic bronchitis, while in cases of uncomplicated fibroid lung the temperature may remain normal. Chronic tuberculosis of the lung can, as a rule, easily be distinguished from fibroid lung. The temperature chart will be most helpful, and while sometimes a little cavitation is found in cases of fibroid lung the physical characters of this condition are very different from those found in tuberculous cases, and tubercle bacilli are not present in the sputum.

With regard to the prognosis, Sir Thomas Oliver, whose experience of this disease is unrivalled in this country, states that when once the disease is thoroughly established the outlook is far from good, but that in the early stages, if the patient changes to a more healthy employment, the chances of recovery are not altogether hopeless. The same writer emphasizes the fact that pneumoconiosis favours tuberculous infection, and when this occurs the prognosis is much more grave. He regards haemoptysis as a very serious symptom, and points out that in some cases acute pneumonia supervenes with a rapidly fatal result.

Treatment.

There is no disease to which the saying "Prevention is better than cure" is more applicable than to the case of those miners who are exposed to such conditions which may result in them contracting fibroid lung. It is most important, when it is known that the dust of a mine contains irritating particles, such as quartz or hard metalliferous dust, that means should be taken, either by ventilation or by spraying with water, to render the atmosphere of the mine as free from dust as possible, and I have already indicated that in this country the Coal Mines Regulation Act has rendered fibroid lung among miners an almost unknown disease, and it is to be hoped that in endeavouring to prevent explosions in this country by adding the so-called inert dusts the atmosphere of the mine will not be vitiated by a quartz-containing dust.

In early cases of fibroid lungs it is important for the worker to be removed from his occupation and transferred to a healthier one, and it is advisable for him to improve, if possible, his home surroundings. Of drugs in treating this disease from the medicinal point of view, potassium iodide, nux vomica, and ammonium carbonate are probably the most useful.

Professor Beattie's Experiments.

The most recent observations upon the effect of dust upon health have been made by Professor Beattie, of Liverpool, who when at Sheffield made many observations upon the effect of stone dust upon the health of grinders in the cutlery industry. He found that fibrosis of the lung could be produced in guinea-pigs after a comparatively short exposure to the dust from the cutler's grinding wheel, and having established that fact he proceeded to carry out experiments by exposing guinea-pigs to coal dust and shale dust; the atmosphere thus produced was very much more dusty than would usually be found in mines.

In the cases of animals exposed to coal dust alone and also to powdered shale alone, 6 in each series were

exposed for a limited time and then allowed to live in the ordinary atmosphere until the end of the experiments, and the remaining 9, as well as those subjected to a mixture of coal dust and powdered shale, were exposed on five days a week throughout the whole of the experiments. All the animals were killed fifty-one days after the first day of exposure to the dusts. The lungs were examined microscopically in every case. The lungs of the animals exposed to the mixed dust could not be distinguished microscopically from the lungs exposed to either coal dust or shale dust, although he admits that they appeared to approximate more closely to the shale dust than to the coal dust lung. He found that both with regard to coal dust and powdered shale particles of these dusts had reached the lungs, and that they were readily distinguishable from one another, and could be seen in the air spaces in the connective tissue framework and also in the lymphatic vessels of the lungs. In some of the animals the dust could be seen in abundance, and the irritating effect upon the lung tissue was quite evident although in an early stage.

The conclusions which Professor Beattie draws from these experiments I will give in his own words:

(1) That the effects produced in the lungs of guinea-pigs which have been exposed to the inhalation of dust correspond with those produced on man. (2) That the effects produced vary with the time of exposure and particularly with the quantity and quality of the dust which is inhaled. (3) The more concentrated the dust in the atmosphere the more rapidly will fibrosis be produced, and the more irritating the dust the more intense will be the fibrosis. (4) The inhalation of such stone dusts as are rich in silica seems to be particularly injurious, and (5) that the powdered shale used in these experiments does not produce more irritation in the lungs than does coal dust, and judging by the comparatively non-injurious effects of coal dust on the general health of the workers, powdered shale may also be regarded as comparatively harmless.

In these experiments the powdered shale dust was obtained from the Altofts Colliery near Wakefield, and it appears that as far as this shale dust is concerned it may be regarded as innocuous if the conditions under which Professor Beattie performed his experiments upon the guinea-pigs may be regarded as similar to the conditions which prevail in a coal mine in which shale dust is used.

In my opinion the conditions are wholly dissimilar, as I understand that the various dusts were forcibly blown into the throats of the animals instead of being slowly inhaled as would be the case in the mine.

Dr. Beattie appears to have lost sight of the importance of the size of the dust granules in making his investigations. Only fine dust enters the lungs, and only fine dust would render coal dust inert, so that we are only concerned with the employment of shale dust or any other inert dust to render the coal dust of the mine non-inflammable. Analyses by Dr. Mellor, of Stoke-upon-Trent, show the importance of further investigation and experiments into the question of the kinds of dust which shall be used for the purpose of preventing explosions. A dust which contains 35 per cent. of quartz and nearly 50 per cent. of argillaceous matter must be viewed with profound distrust if the health of the worker is to be considered. It would appear that if this method were employed, while one evil was being remedied another insidious evil would be produced, and it is possible that we might have a condition of things in English mines similar to what prevails on the Rand and in Australia. This trouble would not be apparent at the beginning; some years might elapse before the disastrous effects of the inhalation of this siliceous dust would be seen, but when the condition of fibroid lung has been set up the course of the disease would run in the same way as we have found it in the South African miners, among the grinders of Sheffield, and as was formerly found among the Staffordshire potters.

THE INFLUENCE OF TEMPERATURE ON THE HEALTH OF MINERS.

The tables of Professor Cadman and Mr. Walley show that the dry-bulb temperature of some of the mines of this country registers 95.5°, 96°, 92°, 97.8°, 88.8° and 87° F., and the same observers found that the wet-bulb readings in certain mines were 79°, 82.5°, 77°, 79.8°, 82°, 81.5°, and 87° F. in different mines, and I have made observations myself in coal mines where the dry-bulb

reading has registered as much as 90° and the wet bulb over 80° F. It will therefore be seen that in a considerable number of mines in this country the men are working at very high temperatures, and it cannot be denied that these temperatures are not only injurious to the health of the worker, but without doubt they have a considerable effect upon their working capacity. From the experiments of Dr. Fraser Harris at Birmingham University upon the human subject it appears that high temperatures with a high degree of moisture increase the pulse-rate and the body temperature and cause a considerable loss of body weight; the respiration-rate is not changed out of proportion to the increased pulse-rate. Professor Langlois of Paris has shown that in an atmosphere at a temperature exceeding 77° F. (wet bulb) ventilation exercised a considerable influence. At 86° F. (wet bulb) the subject, even when resting, was very uncomfortable, if not inconvenienced; in a non-ventilated atmosphere exceeding 77° (wet bulb), the body temperature rose 1.8° to 2.7° F., and the blood pressure was increased by 18 to 25 c.cm. of mercury. The quantity of water evaporated varied according to the temperature and to the hygrometrical state of the atmosphere.

Haldane, as a result of experiments which he has made upon the effect of working at high wet-bulb temperatures, summarizes the results of his experiments as follows: "It is clear that in still and warm air what matters to the persons present is neither the temperature of the air nor its relative saturation, nor the absolute percentage of aqueous vapour present, but the temperature shown by the wet-bulb thermometer. If this exceeds a certain point, about 78° F., continuous hard work becomes impracticable, and beyond 88° it becomes impracticable for ordinary persons even to stay for long periods in such air, although practice may increase to some extent the limit which can be tolerated. In moving air, on the other hand, the limit is extended upwards by several degrees. Men working a rock drill in a hot end or rise in a mine, for instance, have the great advantage that the air is kept in constant motion by the exhaust air from the drill, and that as this exhaust air is very dry, the wet-bulb thermometer at the working place is considerably reduced, even if the rock be wet or damped by a jet or spray of water to prevent dust." And when giving evidence before a Departmental Committee on the humidity and ventilation in cotton-weaving sheds, Dr. Haldane said that he should propose that 75° F. (wet bulb) be taken as a maximum, and below this temperature there should always be a difference of 2° between the two thermometers; 70° (wet bulb) is the temperature which the Home Office specify as the maximum for a factory, but he considered that in the special conditions in Lancashire weaving sheds, and limiting the 75° to the summer heat—the warmer part of the year—there should be no objection to going to 75°.

Dr. Pembrey, as the result of observations upon himself and medical students and soldiers, was of opinion that 70° F. by the wet bulb should be the maximum, and he pointed out that at lower temperatures work could be done at a faster rate more efficiently and with less fatigue and injury to health, and that the effect of work in a warm moist atmosphere is to increase the temperature, pulse-rate, and loss of moisture out of proportion to the work done.

The question of wet-bulb temperatures in coal mines has become all the more important on account of the spraying by water of coal seams and roadways for the purpose of preventing explosions, and it can be easily understood that in mines of high temperature with an atmosphere saturated with moisture, while the risk of explosions is diminished the working conditions are less favourable both to the health of the miner and to his efficiency as a workman apart from the consideration of explosions.

According to the French mining law any temperature exceeding 77° F. on the wet-bulb thermometer must be considered high.

Another important point in connexion with the watering of mines where the temperature exceeds 70° is that favourable conditions are being created for the development of ankylostomiasis should the disease be introduced into the pit. Up to the present English coal mines have not, as far as we know, been infected with this disease, but when it is remembered that the disease is frequent in

the tropics and in the mines of South Africa, India, and South America, and that a large number of men return home to resume work in the mines of this country, we cannot shut our eyes to the possibility of infection of the mines of this country.

In addition to these possible sources of infection, a large number of Poles work both in the coal mines of Scotland and also in South Wales, and these workers may also be carriers of the disease. On the opening up of the Kentish coalfield, where the seams are of great depth and the temperature correspondingly high, there may be an inrush of French and Belgian or even Polish miners, and I think it behoves the management of these pits to keep a keen look-out for the possibility of ankylostomiasis being found among them.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

AIDS IN RECTAL AND VESICO-VAGINAL SURGERY.

In the BRITISH MEDICAL JOURNAL of January 31st there are some remarks on cancer of the rectum in relation to Mr. Cripps's figures, which naturally, with the trend of modern advance, lean towards the more radical abdomino-perineal operation, but with unusual fairness, on account of the supposed comparative immunity it affords. Having watched a large number of the "radical" operations in different cities, I never came away with the impression that they were completed with the primary object in view carried out—namely, an efficient removal of the lymphatic tissues related to the excised portion of bowel. Any surgeon who has an easy has a callous conscience.

Considering all things, it behoves some, for a time at least, to be satisfied with safer and less mutilating procedures, and I suppose it is justifiable to suggest anything likely to render these more efficient or more easy. Next to that, sphincter control should be the chief aim.

Having excised the rectum some months ago by Kocher's mode, I found the suturing of the proximal to the distal end of the gut remarkably easy by the following method: I procured a smooth, stout stick, some inches long, and made a circular groove at one end. This end I introduced into the proximal part of the bowel by way of the anal canal for a short distance. I then tied a tape by a slip knot round the bowel so as to fix it a little distance from its cut edge into the groove. It was then easy to invaginate the upper end of the bowel into the lower by partially withdrawing the stick and easy also to apply sutures. The tape was then removed.

The other procedure was adopted for vesico-vaginal fistula. In the case under operation the bladder was so contracted and the parts so difficult of access for suturing that it was no easy matter to succeed. In this difficulty the following simple means was carried out: I introduced a child's air balloon, drawn over an endoscopic tube, into the bladder and inflated it by a cycle pump. This, of course, distended the bladder and greatly facilitated the further steps.

London, N.W.

JAMES MACMUNN.

PREGNANCY WITH IMPERFORATE HYMEN.

A PRIMIPARA, aged 24, engaged me to attend her at her confinement, and in due course I received notice from the nurse that the patient was in labour, and that there was something the nurse could not understand. On my arrival the pains were strong, and the head was obviously bulging the perineum; but in front of the head there was stretched tightly over it the hymen, with a small hole in it, situated just posteriorly to the urethral orifice. I was able to insert one blade of a pair of scissors through the opening, and divided the membrane, labour being then quite natural. Later I ascertained from the husband that coitus had always been difficult, and he thought that the act had never been complete. One can imagine that when the hymen was not on the stretch by the pressure of the head the orifice must have been exceptionally small, which makes conception the more remarkable.

Northwich.

R. MANWARING-WHITE, M.D. Edin.