their sera of agglutinins against brucella antigen, it is easy to see that overdiagnosis is something that must constantly be guarded against. At present, the serological tests for brucellosis in any patient must not only be interpreted in the light of his symptomatology, but also with cognizance of the serological values obtained in the community in which he lives, and of his epidemiological history.^{1,2} Previous authors have been too ready to accept a history of symptoms obtained by questionnaire as evidence of clinical brucellosis when allied to positive serological tests, resulting in very high reported incidences of the disease in veterinary surgeons.^{6,7} Critical evaluation of each individual is necessary to give an indication of the true incidence of brucellosis in any occupationally exposed group.⁵—I am, etc.,

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- Foley, E. V., and Corridan, J. P., *British Journal of Industrial Medicine*, 1968, **25**, 126.

** Dr. McDevitt's letter has been shown to Dr. Thrower, who makes the following reply.—Ed., B.M.J.

SIR,—All concerned with brucellosis will be gratified to see the final analysis of the survey made on veterinary surgeons in Northern Ireland. As might be expected, practitioners likely to be in frequent contact with infectious material revealed the effects of such contact in their sera more strikingly than those further removed from infection. After all, human contact with many infectious diseases does not necessarily mean that an infection becomes clinically manifest, and the intermittent nature of brucellosis can make it notoriously difficult to relate serology to symptoms.

There is good reason to believe that in England somewhat similar findings would result from a survey such as that made by Dr. D. G. McDevitt, because, as is generally known, the incidence of overt infections in veterinary surgeons is causing disquiet. The serological reactions to brucella infections in bovines, the natural reservoir of *Br. abortus*, would be more clear-cut than in man but for the widespread use of vaccines, and much attention has been given to this problem since the present campaign started to eliminate brucellosis from the United Kingdom.

Those of us who have seen the human disease in its various forms and its wide variation in symptomatology and acuteness appreciate how difficult it can be at times to make an absolute diagnosis, even with all laboratory aids. This is the chief reason why what can be such a disabling disease has never been notifiable—a pity, because even now no one knows how widespread it really is. It is to be hoped that the situa-

tions being uncovered during the eradication of the disease from bovines is in no way indicative of the position in human beings, in whom missed diagnosis is commoner than overdiagnosis even allowing for the fact that symptoms may be attributed mistakenly to *Br. abortus*. The number of these cases must be infinitely smaller than those in whom the disease is not diagnosed by failure to apply or to persist with whatever tests are available.—I am, etc.,

W. R. THROWER.

Bridgwater, Somerset.

Hyperpyrexia after Anaesthesia

SIR,—The case of hyperpyrexia after anaesthesia reported by Drs. Sheila Kenny and D. A. H. Rolfe (21 November, p. 492) differs in many respects from true malignant hyperpyrexia.

The inpatient could not be described as "fit and healthy" at the beginning of anaesthesia as is usual in malignant hyperpyrexia.¹ He was febrile with a large bowel anastomotic leak. No attempt appears to have been made to exclude other causes of hyperpyrexia during anaesthesia by blood culture, etc.² Malignant hyperpyrexia is rare over the age of 45 and this patient would be the oldest so far recorded.

A maximum recorded temperature of 105°F. (40.5°C.) is very low for true malignant hyperpyrexia. The mean maximum temperature in Britt and Kalow's series was 108°F. (42.2°C.).³ Halothane and suxamethonium are the two agents commonly incriminated as triggering malignant hyperpyrexia and neither was used in this case. Subsequent investigation of the patient and his relatives for raised serum creatine phosphokinase levels is not mentioned.

Finally, I would suggest that the lack of muscle rigidity in this case can be explained by the hypothesis that the rise in temperature was not from any abnormal muscle metabolism but from the surgical complication.—I am, etc.,

G. M. HALL.

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Angina and Indomethacin

SIR,—I have noted on occasion that the anti-inflammatory drug indomethacin appears to aggravate anginal pain in some patients with this condition. Because this effect of the drug has not previously been reported in the literature, I carried out a pilot investigation with a view to determining whether in fact indomethacin could bring on or aggravate angina, and whether significant electrocardiographic changes were induced in patients taking this drug. The following is a preliminary report on the trial which is to be fully described elsewhere.

Dr. B. G. Wells, consultant cardiologist at the North Middlesex Hospital, London, kindly analysed the electrocardiograms.

Eleven patients (4 men and 7 women) aged 31 to 74 (median age 59) with various musculoskeletal disorders including two with rheumatoid arthritis, four of whom had a recent history of angina pectoris, had 12-lead electrocardiograms and were then instructed to take two 25 mg. capsules of indomethacin at night. The E.C.G.s were repeated after taking the drug for seven days when the patients were questioned as to development or worsening of anginal pain. Electrocardiograms after exercise were also taken before and after indomethacin in seven patients (it was not considered prudent to record after-exercise E.C.G.s in those who had a past or present history of angina of effort).

One patient who had angina for some months previously developed myocardial infarction four weeks after taking indomethacin. The other three angina patients did not observe any aggravation of cardiac symptoms. Of the seven patients with no history of angina one thought the drug gave her palpitations, but none complained of chest pain. One patient had a normal E.C.G. before indomethacin and developed ischaemic changes of moderate degree after taking the drug, one developed an infarct as already mentioned, five had minor E.C.G. changes of ischaemia before indomethacin and showed some aggravation of ischaemia in E.C.G.s taken while on indomethacin, and four patients showed no E.C.G. changes after taking the drug.

It appears from this short series that indomethacin can aggravate myocardial ischaemia in some patients, and though the occurrence of myocardial infarction in one patient with a history of angina may of course have been fortuitous, the possibility arises that this drug may predispose certain patients to infarction. A controlled trial is now in progress.—I am, etc.,

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Hertfordshire and Essex.

Cardiff Infant Inflating Bag

SIR,—The Cardiff Infant Inflating Bag is widely used for neonatal resuscitation. When the description of the bag was first published¹ it was intended that since the bag would be mostly used by those relatively unskilled in resuscitation it would normally be used with a face mask (Rendell-Baker-Soucek mask). This determined the safety factors built into the bag.

We assumed that in those instances when the baby was intubated there would necessarily be a skilled operator present and that the little bag would be squeezed in a controlled manner. We have gained the impression that this does not always follow, and that a further safety factor is required to prevent any excessive pressure which might result from over-enthusiastic compression of the bag when resuscitating an intubated baby. The patient-outlet of the inflating valve has therefore been modified. A D-shaped slot has been cut along the internal bore of this outlet, providing an additional leak when the endotracheal

catheter mount is plugged into the valve. The result is that the bag now produces similar pressure changes within the baby's lungs whether it is used with a face mask or with an endotracheal tube.—We are, etc.,

WILLIAM W. MUSHIN.
E. K. HILLARD.

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Department of Anaesthetics,
Cardiff.

REFERENCE

- ¹ Mushin, W. W., and Hillard, E. K., *British Medical Journal*, 1967, 1, 416.

Emphysema in Coalworkers

SIR,—We apologize for returning to this subject after our letter (31 October, p. 305), but since then you have published two important contributions from Dr. C. M. Fletcher, 17 October, p. 176 and from Dr. J. C. Gilson and Mr. P. D. Oldham (31 October p. 305), which call for reply.

In practically every case it was possible to distinguish a miner's lung, showing coalworkers' pneumoconiosis, from a non-miner's lung. This precluded effective randomization of the miners' lungs with those of the contrast group.

It is true that coal pigment does emphasize the appearance of emphysematous spaces. The suggestion made by Dr. Gilson and Mr. Oldham that this may give rise to bias (presumably through the absence of such emphasis in non-pigmented lungs, leading to a tendency to underscore them) is of doubtful significance when it is remembered that the air spaces (both normal and abnormal) of non-pigmented lungs are readily detectable when studied by the paper-mounted whole-lung section technique. The method of emphysema counting employed is, of course, a subjective one, since no reliable truly objective methods are available at present, and as such has its limitations, as does for instance the reading of x-ray films, although the observer error is probably less in an emphysema count. We feel, however, that the difference between the two groups is so wide that it is unlikely that the presence of such biases could materially influence the findings.

We do not wish to claim that "emphysema is more prevalent in coalminers than in non-miners." What we said in the summary to our paper (29 August, p. 481) was "Emphysema was much more common among the coalminers both with simple and complicated pneumoconiosis than among the contrast group." We do not know what might be the prevalence of emphysema among coalminers without pneumoconiosis.

We wish to emphasize that all our miners were dead and that death was the determinant that selected them for entry into our study. But then all miners die. The only relevant issue is whether there are many miners in the area with pneumoconiosis who are not known to the Pneumoconiosis Medical Panel, and we demonstrate in the paper why we believe this not to be the case, or whether miners with pneumoconiosis migrate and die outside this country, and this we believe not to be the case. There is always possible bias in correlating postmortem material with findings in life, but this is insufficient reason for not pursuing such studies so long as this danger is kept in mind. We feel that many of the current concepts regarding pneumoconiosis have not been correlated with morbid anatomy and that this should be done more extensively.

Our contrast cases who were a sample of age matched non-miners who died in Cardiff, would not experience a similar "lower incidence of survival" compared to the miners, as the miners had more emphysema and miners with pneumoconiosis have an increased Standardized Mortality Ratio as shown by Cochrane *et al.*¹ Our cases of simple pneumoconiosis (Grades O-A) do, in fact, show an increasing severity of emphysema up to age 70, after which there is a fall but the contrast group also shows minimal

increase in emphysema after 70.

We do not know of any data which demonstrate that severity of emphysema is not related to dust exposure, but we believe that there are data to show that men with pneumoconiosis showing the finer type of nodulation have more dust in their lungs than those with similar radiological categories of the coarser type. If this were true, it would support our hypothesis that "p" type is more harmful than the others and that this is related to the severity of the emphysema.

We do not agree with Dr. E. Posner's affirmation (31 October, p. 305) that our findings conflict with the special provision of the Industrial Injuries (Amendment) Act, 1967. It is true that only emphysema occurring in the more advanced cases of pneumoconiosis is regarded as being fully relevant, but it should be made clear also that emphysema occurring with the earlier degrees of pneumoconiosis may be regarded as partly relevant or connected conditions and an appropriate assessment made for it. In the light of present knowledge this approach seems to us to be both practical and just.—We are, etc.,

R. RYDER.
J. P. LYONS.
H. CAMPBELL.
J. GOUGH.

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Cardiff.

REFERENCE

- ¹ Cochrane, A. L., Carpenter, R. G., Moore, F., and Thomas, J., *British Journal of Industrial Medicine*, 1964, 21, 38.

Shortage of Technicians

SIR,—It is incongruous that in the technological age medicine, and to a lesser extent industry, should be hampered by a severe shortage of technical manpower. It would seem probable that as a nation our priorities regarding technical and scientific training leave much to be desired.

It is commonplace to advertise for qualified medical laboratory technicians in chemical pathology for months or even years without obtaining a satisfactory reply. If the same post is advertised to be filled by a graduate dozens of replies may be expected. The same applies to most disciplines of pathology.

One of a number of problems causing a shortage of young men and women pursuing technical careers is the belief, rightly or wrongly, that the university degree is an automatic passport to success, and that to accept training for a higher national certificate or diploma is only second-best. The technical colleges and the institute responsible for medical laboratory technicians aware of this problem have persuaded the Department of Health to support a degree-level course in medical laboratory technology. The diploma is, for the present, seen as an alternative route to fellowship of the professional body concerned. This surely is the wrong approach to a problem, for as already indicated there is a surfeit of graduates and a severe shortage of medical laboratory technicians. This shortage will continue until we can overcome the psychological inadequacies of the present technical education system; to supplement it by a degree-level course is in itself an admission of failure of the present system.

The present and future need is for a

highly trained, well educated technical force with an emphasis on technical ability rather than academic prowess. We must aim at a technical education system designed to attract some of the present university entrants who, although less academic, would not feel or be inferior to their graduate counterparts.

The alternative to a complete revision of the present training system would be to staff our medical laboratories entirely with graduates. With the present surfeit of graduates this would be comparatively easy and is in fact taking place in chemical pathology laboratories. However, most pathologists would agree that the properly trained medical laboratory technician is invariably worth two graduates in terms of work load and technical ability. Perhaps the alternative to the present situation is for a school of medical laboratory technology?—I am, etc.,

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Virus-like Structures in Lupus Erythematosus

SIR,—I believe that there is an inaccuracy in your leading article on the subject of virus-like structures in lupus erythematosus (14 March, p. 643).

Referring to the study of electron micrographs of percutaneous renal biopsies reported by Kawano *et al.*¹ your article states "the virus-like bodies were found in only 10% of 260 cases of lupus erythematosus examined." However, I understand that the 260 biopsies examined came from patients with all types of renal disease, selected merely because adequate specimens were available. Myxovirus-like structures were found in sections from 28 of the patients and 25 of these had definite lupus erythematosus. The diagnosis of lupus erythematosus was by no means excluded in the other three cases. No normal controls were described, but "material reminiscent of reovirus" was observed in only 10 of the remaining 232 biopsies.

The evidence from this one paper for a relationship between lupus erythematosus and myxovirus infection is therefore rather stronger than your article implied.—I am, etc.,

R. T. TAYLOR.

Westminster Hospital,
London S.W.1.

REFERENCE

- ¹ Kawano, K., Miller, L., and Kimmelstiel, P., *New England Journal of Medicine*, 1969, 281, 1228.

Rickards Memorial Fund

SIR,—A suggestion has been made by the colleagues of the late Dr. C. E. B. Rickards (obituary, 9 May, p. 369) that a memorial fund should be opened to public subscription in the hope that some permanent memorial to Dr. Rickards and his work may be established. In addition to his medical work, Dr. Rickards was well-known in the worlds of music and drama and had shown an unusual competence in both. It is proposed that a memorial fund might be devoted to supporting academic work in the fields of obstetrics and gynaecology, or in promotion of similar activities in music and drama.