X-ray examination following injection of "lipiodol" into the cisterna magna and into the lumbar region of the subarachnoid space with inversion of the patient revealed an extramedullary block extending from the body of the second thoracic vertebra to the lower border of the fourth. Laminectomy was contemplated, but by Nov. 10 slight objective sense perception was demonstrated and some control over micturition was evident. Steady improvement occurred, and normal function and normal signs in both lower limbs were established by May 15, 1933.

On July 12, 1933, an abscess made itself evident at the vertebral border of the right scapula. This was incised, and the subsequent sinus healed in six weeks. A pure culture of *Staph. albus* was grown from the abscess pus. There were no signs or symptoms referable to the back prior to the development of the abscess. Examination as an out-patient in May, 1934, showed the femoral lesions to be completely healed and epithelialized, and the spine and back seemed perfectly normal.

It remains a matter of speculation whether the above sequence of events was due to a metastatic abscess unrelated to a focus of bone infection, or whether the abscess developed secondarily to a "minimal" bone lesion too small to be detected by x-ray examination, as occurred in Case 1 of Mr. Martin's series (Nov. 9, 1946, p. 688).—I am, etc.,

Cleveland, Ohio, U.S.A.

T. FRANCIS JARMAN.

Air Crashes and Fractured Spines

SIR,—The development of civilian flying seems to be causing an increase in the number of fractured spines, and their treatment may now have to be undertaken by those inexperienced in the application of hyperextension plasters. Serious sores may be easily caused, and yet they can almost always be avoided if the two following precautions are taken:

(1) A strip of adhesive felt 6 in. (15 cm.) wide and about 36 in. (0.9 m.) long is fixed down the centre of the back over the spinous processes and smaller strips of the same material cover the iliac crests, symphysis, and manubrium. Stockinette or an old bathing costume may be put over this, but no cotton-wool should ever be used.

(2) The first plaster of Paris applied to the back of the hyper-extended patient must be a 6-in. longitudinal slab from the base of the neck to the sacrum. This is held in place by circular 6-in. plaster bandages, supplemented of course by additional slabs and in particular by the all-important anterior strut, which takes its bearing on the manubrium sterni and symphysis pubis. The common mistake is to start with circular bandages round the lumbar region (which is of course in marked lordosis), with the result that they tend to slip down into the lowest part of the hollow of the back and make a sharp transverse ridge which can and does cause disastrous plaster sores.

Every orthopaedic and fracture department has of course the necessary equipment, but it is my firm belief that even the smaller hospitals should always have a stock of 6-in. plaster bandages and adhesive felt.—I am, etc.,

London, W.1.

ERIC I. LLOYD.

Eye Surgery

SIR,—It is not my desire to counter any criticism in your review of my book *Eye Surgery* (Dec. 28, 1946, p. 989), but I feel unable to allow your reviewer's statement about Krönlein's operation to pass unchallenged, for if this is accepted by your readers it will give a wrong impression of a valuable operation. The comment in your review is thus: "Few surgeons who have tried it will agree that a Krönlein's operation is particularly valuable for the removal of retro-ocular new formations." All the cases which I have done of Krönlein's operation for an orbital neoplasm have recovered visual acuity, in some instances from perception of light to 6/6 (partly), and the visual field has improved very appreciably. In two of these cases orbital exenteration had been advised by more than one surgeon. In one case transfrontal craniotomy had been done at Oxford, where the report was that "the orbital neoplasm was not seen." Nine months later I removed it by Krönlein's operation; the patient was spared exenteration; the optic nerve which was stretched over the neoplasm recovered almost entirely, save for a small defect in the visual field.

Another point made in the review concerns the use of two needles for dividing thick capsule remnants. The reviewer writes: "Whether one needle bent at an angle should be used

in operations with two needles seems a moot point. Most surgeons prefer to avoid angled instruments, since direction is less certain than with straight instruments." He will have read earlier in the book my comments about straight instruments making precision work easier than is the case with angled instruments. The latter are, however, necessary in entering the eye from the nasal side, as in capsulotomy with two needles and in using a keratome on a deep set eye with prominent supra-orbital margin. It is quite impossible to use anything but an angled instrument under these circumstances, the nose and brow forming obstacles.

Another comment which I think is likely to mislead is: "The author likewise probably takes an extreme view in believing that malignant melanomata of the choroid are not so radiosensitive as glioma of the retina." Although I have had success in irradiating malignant melanomata of the choroid with radon seeds sutured to the sclera, it is a fact that these neoplasms are not so radiosensitive as gliomata retinae.

I express my grateful thanks and appreciation of your reviewer's generous remarks elsewhere in his review.—I am, etc.,

London, W.1.

H. B. STALLARD.

Defective Colour Vision in Industry

SIR,—In the opening sentence of the leading article (Dec. 21, 1946, p. 948) you make an excellent point when you say "Defective colour vision, more commonly and less accurately called colour-blindness . . ." That you should emphasize the frequency of terminological inexactitude in this connexion is of great importance at the present time when the role of colour vision in industry is receiving greater attention. So many of the so-called anomalous trichromats declare most emphatically that they are not colour-blind, and their contention is undoubtedly correct. The explanation of the defect as a faulty colour appreciation is well received, and now is the time to urge very strongly that the term colour-blind should be replaced by the term colour-defective.

The time is also opportune to suggest that the presence of defective colour vision is only in a limited number of cases a bar to the efficient performance of many of the tasks mentioned in your article. As is well known, the R.A.F. had many colour-defectives who, as members of aircrew, played an important role in all commands, and the salvage of manpower achieved by the use of the colour-defective safe category was considerable. This "safe" category has, however, been subjected to much criticism—perhaps the most important being that the personal equation of the examiner was too great. During the war much work was done in this country and in America to work out the permissible degree of colour-defect for certain tasks. Clearly there is a great field for the salvage of colour-defectives in industry just as in the Services, but it is now realized by all who have been asked to do colour vision testing on a large scale that the problem is exceedingly complex and admits of no easy solution. Difficult borderline cases will always appear.

Later in the article you are on less sure ground when you state that the mothers of male colour-defectives are not themselves affected. It is probably true to say that these relatives are not so grossly affected, but by more accurate testing methods—anomalouscope or colorimeter—quite a number of these women show a definite deviation from normal. Pickford² has investigated this problem, and he found among the female relatives of colour-defectives a considerably higher incidence of colour defects than the expected. I have seen one or two families where the sister of colour-defective brothers has had a marked degree of colour defect.—I am, etc.,

Dundee.

JOHN GRIEVE.

REFERENCES

- ¹ *Nature*, 1946, 157, 376.
- ² *Ibid.*, 1944, 153, 409.

Diet and Canine Hysteria

SIR,—As a member of the sister profession may I be allowed the courtesy of the use of your columns to comment upon the report (Dec. 14, 1946, p. 885) of Sir Edward Mellanby's feeding experiments? This piece of work has aroused lively interest in the veterinary world, and we would all most heartily welcome a final elucidation of the aetiology of canine hysteria.

While of course according the greatest respect to the work of so eminent a scientist as Sir Edward, I feel, as a clinician, that his findings do not quite fit in with all the known facts concerning hysteria as it occurs in the field. In the first place, Sir Edward stresses the occurrence of epileptiform fits among the symptoms, unconsciousness lasting sometimes half an hour up to 36 hours; yet I must say at once that such fits are not a prominent feature of canine hysteria in the field. Is the condition produced by Mellanby that which a veterinary surgeon recognizes clinically as hysteria, or is it some other condition?

I personally have always held that canine hysteria had an alimentary aetiology, and I favoured a toxic rather than a deficiency factor. The recent experiments appear to confirm the first belief and incriminate treated wheat flour as the actual cause. It is alleged that dogs fed on a diet containing agenzized flour will contract hysteria, while control animals fed on the same diet but with the cereal portion not agenzized will not do so. It is said that 90% of the flour consumed in the country is agenzized, and it is scarcely conceivable that animals, whether consuming bread or biscuits, can avoid consuming agenzized flour. The racing greyhound, of which there are many thousands, is normally fed (in times of abundance) upon stale bread soaked in gravy, mixed, of course, with other foodstuffs. The majority of this must have been agenzized.

It is pertinent therefore to ask why all these animals up and down the country have not been in a perpetual state of hysteria. Yet the occurrence of hysteria is comparatively rare and very sporadic. Can it be contended that an immunity is acquired from the consumption of bread? If so, why are only some and not all immunized? It is certainly true that recurrence in the same animal is most unusual.

It has been my experience, and that of many others, not excluding Sir Edward, that to change the food or its source has been practically all that was needed to abort an outbreak in a kennel or stop an attack in an individual. This must have meant, in innumerable cases, changing from one make of bread or biscuit to another make; in effect to feed on food made from an entirely different consignment of flour. This led to my strong belief that the aetiological factor was possibly a parasite of wheat or a mould on the stale bread, especially as Russell Greig had proved (in 1922) that what he then called epileptiform convulsions could arise from the presence in the alimentary tract of a wheat parasite—*Tilletia tritici* (bunt or stinking smut). Such a theory is not yet disproved.

Although it is claimed that the real incidence of hysteria occurred at about the same time as the introduction of the agene process, yet there are in the literature references to hysteria made earlier than this, and I have known of the disease almost as long as I have been in practice—now 35 years. It is open to doubt if hysteria has really increased from the very early days when it was first reported, since it may only be that the diagnosis has been more complete. In the kennel of some 300 greyhounds over which I have veterinary control I have not had to report a single case of hysteria for more than a year. The last attack—in about half a dozen dogs—occurred about two years ago. I have seen about seven cases in private practice during the past year. In the meantime I am making inquiries in other countries, which may throw light on the subject. It would be enlightening to know the total number of dogs employed in Mellanby's experiments and what was the actual percentage which contracted hysteria.

There are other issues, too, which could be raised if space would permit. Anxiety has been expressed in the lay Press and elsewhere that humans should be obliged to consume food which is proved to be unsafe for dogs. Is it assumed that such food would produce hysteria or epileptiform fits in man? So far as I am aware there seems as yet little evidence that the general health of mankind has suffered in consequence; at least I am not aware that either of the above conditions has been on the increase in man.—I am, etc.,

London. N.W.11.

HAMILTON KIRK.

Mental Deficiency

SIR,—Dr. Mary N. M. Paulin (Jan. 4, p. 31), in drawing attention to an inaccuracy in "Any Questions" under the heading "Mental Deficiency" (Dec. 14, 1946, p. 929), herself makes an inaccurate statement. I had hoped that by this time some more authoritative person than myself would have drawn attention to these inaccuracies, but as they seem to be likely to be passed unchallenged I feel I must do so, as failure to

realize their significance may cause distress to many parents. The question is somewhat complicated, so that for the sake of brevity I shall mention only the main points. Dr. Paulin states that "the Education Act of 1944 gives to local authorities the power to order special educational treatment for *mentally deficient* children. . . ." [The italics are mine.] It should be noted that the phrase "mentally deficient" has been abolished from the educational world by the Act and should not be applied to educable children. Those who are backward but educable are now known as educationally subnormal.

Referring to the original question (Dec. 14, 1946), I have difficulty in understanding it. If the child is an "idiot" as stated in the question he is ineducable. The local education authority cannot send him to a special school. It is their clear duty to refer him to the local (mental deficiency) authority. If he is educable he is certainly not an "idiot." (An idiot is a person who is unable to guard himself against common physical dangers.) Referring to your answer (Dec. 14, 1946), I again find a difficulty. If a child is "certified as a mental defective under the Mental Deficiency Acts of 1913 and 1927" he is beyond the jurisdiction of the local education authority and cannot be sent to a school, ordinary or special. The local (mental deficiency) authority can send him to an institution at the instance of the parent or guardian, or under certain other conditions such as neglect.

If the word "idiot" is used inadvertently in the question and should be replaced by the words "educationally subnormal," then it is the duty of the local education authority to provide special treatment in an ordinary school or, if they think desirable, in a day or residential special school (unless the parent makes other suitable arrangements). If the child is ineducable it would be not only illegal but also most undesirable in the interests of other children to allow him to attend school. If he is educationally subnormal it is essential that he should have appropriate educational treatment, and, if the backwardness is very marked, it is unlikely, as is suggested in your answer, that such education could be provided in a village school.

The Education Act of 1944 allows for appeal by the parent to the Minister of Education against the decision for special educational treatment or for reference to the local (mental deficiency) authority. It should be realized that in this and various other ways the interests of the child and the rights and feelings of the parents are very carefully protected by the Acts. Various circulars issued by the Ministry have emphasized this. For the educable there is in many areas a shortage of accommodation in day special schools, and throughout the country there is very serious lack of accommodation of residential special schools; and for the ineducable there is gross lack of institutional accommodation. Hence it is in only very clear-cut cases that an educational authority is likely to want to send an educable child to a special school or a local (M.D.) authority to want to send an ineducable child to an institution.—I am, etc.,

Nottingham.

A. A. E. NEWTH.

Age Limit in Advertisements

SIR,—I was interested to read the letter from "Dunmar" (Dec. 28, 1946, p. 1007) on the age limit for whole-time posts under the various ministries. There appeared a short time ago an advertisement for a regional medical officer under the N.H.I. Having reached the ripe old age of 50 in March I found I was six months too old for it. The fact that I was too old was due entirely to the four years I spent in the Army, 1914 to 1918, before beginning my medical training. I was then, in common with thousands of others, labouring under the delusion that in fighting for my country I was more fitly serving it.

In the 1930s a similar post was advertised for Scotland, the age limit then being 35, again debarring ex-Service men. Last year there was a vacancy in Scotland again, the age limit being raised to 45. This still excludes men like me, but also proves that the age limit is capable of adjustment.

I sent for an application form for the posts advertised in November, and was much interested to read that not only did my old age count against me, but the disgrace of never having been captain of the school, never having been even a prefect had put me beyond the pale. I received my early education among the very men who are patients under the N.H.I., and