a part. Also supporting this statement is the fact that the supposedly very sensitive bilirubin tolerance test, as a measure of liver damage, is diminished in pernicious anaemia.

In iron deficiency and in Addison's anaemia the red cell fragility is normal or more usually decreased, whereas in the haemolytic type of anaemias it is usually increased—this includes the toxic type of haemolysis, e.g., in lead poisoning.

There is one factor not mentioned by Dr. Bomford which seems to materially support his argument, and that is the presence of methaemalbuminaemia in pernicious anaemia. It is only formed, so far as is known, from extracorporeal haemoglobin and serum albumin and is therefore supposed to indicate intravascular haemolysis. It is found in all the haemolytic anaemias except acholuric jaundice, its absence there being accounted for by the supposition that in this disease the "haemolysis" is performed by the reticulo-endothelial system and therefore extravascularly. It might also be pointed out that the methaemalbumin is excreted solely by the liver and that in liver damage it might be retained; but its very presence is pathological, I believe. There is one last simple but apparently significant fact that seems very much in favour of the faulty erythropoiesis theory, and that is the almost constant finding of leucopenia and thrombocytopenia in cases of pernicious anaemia in contrast to the opposite state found in the haemolytic anaemias.

Unfortunately, being somewhat isolated, I have no means of checking these statements nor of getting them criticized. A practical suggestion, should it not already have been performed, which might shed some light on the theory of unused haemoglobin being the source of the excess of bilirubin in the serum, etc., might be the determination of serum bilirubin levels and urobilinogen excretion in cases of Addison's anaemia with superimposed iron deficiency.—I am, etc.,

M.E.L.F.

A. A. MUDIE,
Lieut., R.A.M.C.

Principles Governing Nervous Activity

SIR,—Prof. E. D. Adrian describes (March 8, p. 305) how synaptic delay through multineurone arrangements and afterdischarges accounts for "long-lasting central effects" by which "the results of an afferent message might be stored indefinitely to influence behaviour for many years to come." Such specialized continued activity over years is incompatible with normal sensory experiences, whose residua are known to lie dormant (as engrams) until a similar sensory circumstance again occurs. Residua of sensory patterns therefore are not an activity but a structural tissue change such as is afforded by neurobiotaxis and growth of capillaries. "The neural equivalent of what went on in the mind" may be a necessary adjunct for mental development and its expression, but must not (as I have shown, Feb. 8, 1938, p. 265) be considered as an actual part of mental phenomena because of absolute differences in the fundamental characteristics of neurone and mental function.

"That purposive acts must be moulded by afferent patterns" may be simply explained by assuming, with some degree of positive evidence, that the afferent stimuli cause local changes of lumen of cerebral capillaries, which open or close appropriate reflex pathways by influencing threshold values of adjacent neurone groups. Neuronal activity along these open pathways is known to leave a wake of acid and other metabolites, which can change the vascular pattern and so cause subsidence of the central disturbance. If the original pattern of afferent stimuli still remained, then the vascular pattern would of course tend to re-form.

The signalling of the achievement of purposive acts along afferent pathways as the cause of the subsidence of the central disturbance, which is the basis of Prof. Adrian's scheme for investigation, involves a decentralization of mental phenomena, and seems to me unnecessary, since an urge readily disappears, without change of pattern of the afferent stimuli, upon the advent of unrelated stronger stimuli.

Birmingham.

F. A. PICKWORTH.

Rubella and Pregnancy

SIR,—I refer to the letter from Dr. Robert Sanderson (Feb. 1, p. 199). It is easy for the objective observer to criticize the remedies proposed for ills which have not affected him personally; but the objective viewpoint tends, *per se*, to be truer representation.

Dr. Sanderson saw his grand-daughter afflicted with a deaf-mutism which probably was a consequence of rubella during

the pregnancy of her mother. He advocates abortion of pregnancies during which rubella occurs, as, he understands, "is being done in Australia" (is it being done in Australia?). This suggestion of his must be based on emotion rather than on reason. The figures in your leading article of Nov. 23, 1946 (p. 778) indicate that a possible 10% of all rubella pregnancies result in congenitally abnormal children. Has Dr. Sanderson any suggestions to make as to how we may discriminate, so that the nine out of ten infants who would be born entire may escape the "massacre of the innocents"? Or does it seem feasible that such diagnosis will ever be attainable? However, granting the discovery of a method which will enable us to identify deaf-mutism or such in the unborn, we now come closer to the basic objection to direct abortion which Dr. Sanderson advocates. To quote his letter: "deaf-mutism is such a domestic catastrophe and permanent sorrow that I advocate inducing abortion . . ."

The root of the problem lies deeper. May I quote: "For those who believe, no explanation is necessary, for those who do not believe, none is possible." It is accepted, as the result of rational argument, by philosophers and theologians of many denominations that direct abortion is murder and is therefore never justifiable. There are many more "problems" in relation to the morality of abortion, some whose correct solutions are more difficult of acceptance, than that introduced by the association of rubella in pregnancy with congenital defects. It is for that reason that I ask you to publish this letter suggesting the correct approach, ethically, to these things; it is the morality of our behaviour which must take precedence over its expediency in such dilemmas, which are really only apparent and are not unsolved.—I am, etc.,

P.O., Sesheke, N. Rhodesia.

W. KEVIN BARRY.

Prevention of Infant Deaths

SIR,—In their interesting and well-informed comments on my paper on the above subject, Dr. I. Rose (Dec. 28, 1946, p. 1006) and Drs. I. M. Harkness and J. B. Cochrane (Jan. 18, p. 114) stressed the same point, namely, that the deaths of at least five infants cited might have been avoided by retaining them in hospital for a longer period. They are of course absolutely right in this, but it is also true to say, as I tried to indicate, that it was because of the inadequate care they received on discharge, due to the prevailing sociological conditions and at a time when they were unable to withstand such adverse conditions, that they did not survive. It is agreed that this was a consequence of their too early discharge, but this train of events would not necessarily apply where a premature baby goes to a good home with a capable and sensible mother. Drs. Harkness and Cochrane in the second paragraph of their letter describe better than I could have done the sociological dangers to which many babies are exposed on leaving hospital, and a wider realization of this is needed. Nevertheless, the viewpoint of the hospital doctor must be appreciated, for, quite apart from the shortage of beds and cots, the risk of cross-infection cannot be excluded, and, other things being equal, the sooner a baby is out of hospital the better. The dangers of a poor home environment will often outweigh the potential dangers of cross-infection, but this will not always be so; in any case the hospital doctor must be kept informed of the sociological background of his cases, for without this knowledge he cannot decide whether a baby should be retained in hospital beyond the normal period. It was there that our arrangements were found to be wanting, and it was to remedy this that our scheme was devised.

I am glad to have the support of Drs. Harkness and Cochrane for my claim for the provision of hostels where prematures and other debilitated babies can be "hardened off" before returning to unsatisfactory households; it is, however, probable that such hostels might have a greater part to play than that of mere postnatal sanctuaries, but this is too large a question to enter into here. I regret I cannot give Dr. Rose details of the discharge weight of the babies concerned, but unfortunately I have not here available the records to consult. As regards blood counts, it was the practice when these cases were under treatment to do a routine blood count on every expectant mother where there was a suspicion of clinical anaemia or debility, and the blood counts quoted referred to the antenatal

period. Iron and vitamin preparations were available and were given almost as a routine, and liver preparations could also be used if and when required.—I am, etc.,

West Bromwich, Staffs.

J. TUDOR LEWIS.

Shortage of Nurses

SIR,—Gloucester is to be congratulated on having evolved a practical scheme for the employment of part-time nurses which will go a long way towards meeting the present hospital staff crisis. It is unfortunate that a number of authorities such as the Kent County Council have not yet launched a publicity campaign for the recruitment of these part-time workers and indeed are turning away from their hospitals both trained and untrained personnel who have volunteered for part-time work in response to the Government appeal.

It is also unfortunate that owing to an oversight an anomaly arose when the London County Council part-time scheme was first operated whereby nurses doing 30 hours in the week received more pay than those doing 40 hours. I understand that this anomaly will now be removed. Its removal will however accentuate the obvious disparity referred to by Miss Katharine F. Armstrong (March 15, p. 345) between the pay of the part-time and the full-time nurse. The argument in regard to nurses' emoluments cannot hold good indefinitely, since it is recognized by all those anxious to promote an adequate flow of suitable recruits to the profession that nurses should, wherever possible, live out, and in fact in many cases already do so.

The suggestion put forward by Dr. L. Ley for preliminary training (March 15, p. 355) is excellent, and it is of course essential to the success of any long-term scheme that nurses' training colleges should be integrated with the higher educational system of the country. It is, however, also essential that the rates of pay for student nurses should be drastically revised, not in the light of whether we can afford 6d. a week more but in the light of whether we will be able to run our hospitals without a steady inflow of keen intelligent girls into the nursing profession.—I am, etc.,

St. Mary Cray, Kent.

BRIAN H. KIRMAN.

SIR,—Your correspondent Dr. Leonard Ley (March 15, p. 355) has outlined in his letter some useful and wise suggestions whereby the recruiting of nurses can be accelerated. Would it be forgiven if I ventured to say that on a most important matter he has, in common with many medical men, missed the point?

A woman who is in training, or who has trained, in the care of the sick is a "nurse" simply and solely and should be treated as such. In many hospitals nurses are messengers, and it is quite a part of their routine to leave off any nursing duty which happens to be on hand just to "run to such-and-such a ward," "fetch this," or "borrow that." It is not exaggeration to say that many a young nurse associates the advent of the doctor into the ward with being sent off to find forgotten x-ray films, notes, or to borrow, in a hurry, some instrument in which the ward is lacking. The natural pride and interest that a young beginner to nursing feels in her work is rather rudely shaken when she "downs tools" to become a harassed messenger girl.

Is it too much to hope that soon we may see wards equipped each with such articles as Ryle's tubes, ear syringes, steam kettles, etc.? In how many wards are such articles as kidney dishes, enamel bowls, and trays at a premium? Why is so much time spent in sending off for such articles to be borrowed? As for the messages which must be fetched and delivered in all wards, cannot official runners be employed or, failing that, the under-training-age recruits? Surely it should be a thing unheard of for any nurse, however junior, to leave the ward work for any pretext whatsoever—except, perhaps, the classical "fire or haemorrhage." In these matters doctors can help.—I am etc.,

London, E.17.

CARMEN MORFEE.

SIR,—I wonder whether Dr. Ley (March 15, p. 355) is aware that the General Nursing Council divided the Preliminary State Examination in 1938 in order that the subjects of anatomy, physiology, and hygiene could be included in the general school

curriculum so that intending candidates might cover these subjects before entry to hospital for training. Pre-nursing courses have already been established in 265 schools and technical colleges in England and Wales. The list can be obtained from the offices of the General Nursing Council. A girl completing a course can take Part I of the Preliminary Examination before entry to hospital. Last year over 12,000 candidates presented themselves for Part I of the Preliminary State Examination, but unfortunately only quite a small number entered by way of a pre-nursing course.

The recruitment of sufficient nurses is an educational problem which can be solved only when the education authorities of the country take the responsibility which is theirs and when every school and technical college in the country has a pre-nursing course. This measure would simplify recruitment; further, it would lead to revision of the nursing curriculum in order that the knowledge of the basic sciences already gained might be used to form the best foundation for nursing training.

—I am, etc.,

London, N.W.11.

EVELYN C. PEARCE.

Mengo Hospital Jubilee

SIR,—May I draw the attention of readers of the *Journal* to a rather unusual medical anniversary. In February, 1897, after an adventurous three months' journey on foot for 800 miles from the coast, there arrived at the capital of Uganda a party of missionaries, who included among their number the young Dr. A. R. Cook and his future wife, a nursing sister named Miss Catherine Timpson. Shortly before, another pioneer, Bishop Hannington, while on the same journey, was murdered as he crossed the Uganda frontier.

In May, 1897, the first hospital to be established anywhere in this part of Africa was built of reeds and mud, and from that date without cessation a stream of patients has passed through the wards of this hospital—the figures for last year, 1946, being 4,317. Out-patients numbered over 14,000, and nearly 900 operations were performed. There is to-day a nurses' and midwives' training school with 110 students, and each year some of these girls, qualified at a Government examination, pass out into numerous hospitals and maternity homes throughout East Africa, both Government and mission.

Space forbids mention of much of the fascinating history of this medical work, started by Sir Albert Cook, C.M.G., O.B.E., M.D., etc., and his brother, J. H. Cook, M.S., F.R.C.S., but it is worth recording that the first vaccinations against smallpox in East Africa were performed here and the first case of sleeping sickness in Uganda recognized in these wards, apart from many other pieces of original work in therapeutics, public health, and medical education. Fifty years in the life of a young African territory is a long time, and such a Jubilee should not pass unnoticed in medical circles. With this in view the Uganda Branch of the British Medical Association is organizing an East African inter-territorial meeting to celebrate the occasion during the first week in September. The work done in these years has been of the highest quality, as is exemplified by the orderly rows of bound case sheets in the hospital library, dating back to the first case seen *en route* even before arrival. It is interesting to mention that on another shelf are bound copies of the *British Medical Journal* going back to the very early days of the century.

A programme of rebuilding, urgently needed, is being undertaken to mark the occasion of the Jubilee at a cost of £30,000. If any readers should feel inclined to help with the carrying on of this valuable service for one of our African dependencies, donations would be gratefully acknowledged by the Secretary of the Jubilee Appeal, Box 161, Kampala, Uganda.—I am, etc.,

R. T. S. GOODCHILD,
Medical Superintendent.

Medical Certification

SIR,—I was interested to read (March 15, p. 353) of Dr. Leslie Ballon's struggles with the Board of Trade to procure a "thermos" flask for one of his patients. I am recording a case of my own, as I think you will find it rather amusing, though I am afraid I did not think it very amusing at the time—particularly as just then I was spending a large part of most days digging my car out of snow drifts.

Mrs. S. gave birth to a 5-lb. (2.2-kg.) child, and it was considered necessary to give the child three-hourly feeds. As