prevention of the premature births. A great deal could be done by making more antenatal beds available. The admission of patients with ante-partum haemorrhage to hospital as soon as the first warning occurred would result in a great diminution of the premature and stillbirth rate. The early diagnosis of toxæmia and institutional care would enable many cases to go to term when otherwise intrauterine death and premature labour would result. Instrumental termination of pregnancy should if possible, in those cases in which it was necessary, be delayed until the end of the 37th week as it would make all the difference to the chances of survival.

Eugenic Considerations

Prof. L. S. PENROSE (University College) said that prematurity and mental retardation were correlated and that intracranial cerebral haemorrhage might be the cause. Paediatric authorities were convinced that cerebral diplegia was mainly due to intracranial birth trauma. Observations at Queen Charlotte's (Martin, 1931) showed that the duration of pregnancy averaged 278.3 days (with a standard deviation of 16.4 days) but ranged from 195 to 360 days. There were more than twice as many premature as postmature babies, so some common specific causes of prematurity might be postulated. One of these causes was the occurrence of multiple births; twin pregnancies terminated, on the average, 15 days, and triplet pregnancies 24 days, earlier than the normal. Factors in the paternal sperm were considered as causes of premature delivery. Icterus neonatorum was, in most cases, due to the fact that the foetal blood contained an antigen, received from the father, which the mother did not naturally possess and to which she formed antibodies. Antigenic incompatibility of foetus and mother was undoubtedly a cause of infant mortality, and miscarriages and premature births were part of this picture.

Dr. LETITIA FAIRFIELD said that the fundamental gap in their knowledge concerned the factor which set up the process of expelling the child from the uterus after an average period of nine months. There were so many unknown influences in gestation that its duration was largely in the region of guesswork and not of scientific ascertainment. Dr. C. L. WILLIAMS said it was important that during the later months of pregnancy the woman should do nothing involving physical strain, especially the use of the hands above her head, as it was by attention to small things like that that the 50% neonatal deaths due to prematurity would be reduced. Dr. DE SWIET, in closing the discussion, suggested that the role of the male parent might have to be more emphasized. It might be necessary to deal with the "expectant father" and to enter the realm of pre-conceptional care, and Prof. BROWNE commented: "A valuable discussion, and it shows that we do not know anything at all about the subject!"

As announced last week, an extraordinary meeting of the members of the Liverpool Medical Institution was held on Saturday, Oct. 19, with the President, Dr. G. F. Rawdon Smith, in the chair. Addressing a large gathering of members, the President stated that the meeting had been called for the purpose of conferring Honorary Membership of the Institution on six eminent members of the medical profession, Dr. Alfred Ernest Barclay, Sir William Allen Daley, Dame Anne Louise McIlroy, Prof. Charles McNeil, Dr. Ivan Whiteside Magill, and Sir Aifred Webb-Johnson. Dr. Robert Coope acted as orator for the occasion, and introduced the new Honorary Members severally. They were then formally admitted by the President, and each made a brief reply, expressing appreciation and thanks to the members. In the evening, the Honorary Members, together with the Lord Mayor of Liverpool and other official guests, were entertained to dinner at the Exchange Hotel.

The Hunterian Society's programme for the session 1946-7 includes a discussion at Apothecaries' Hall on Nov. 18 at 8.30 p.m., "That the advertisement of proprietary medicines is a menace to the public." On Dec. 16, at a dinner meeting at 7.15 p.m. at Pimm's, 3, Poultry, E.C., Dr. Geoffrey Evans will open a discussion on "Flatulence." On Jan. 20 Prof. Debaiseux, of Louvain, will give the Hunterian Lecture on "Hypotension in Intracranial Injuries" at the Mansion House at 8.30 p.m. On Feb. 24 Mr. V. Zachary Cope will give the Hunterian Oration on "Literature and Doctors" at the Mansion House at 8.30 p.m. On March 17, at a dinner meeting at Pimm's at 7.15 p.m., Sir Reginald Watson-Jones and Dr. J. B. Mennell will open a discussion on "Sprains and Strains."

Correspondence

Selection of Medical Students

SIR,—Prof. D. H. Smyth's admirable general discussion of problems of selection in the case of medical students, and your comments upon his article (Sept. 14, pp. 357 and 375), make it exceedingly clear that the time has come when these problems must be taken seriously. It is very likely that some agreed methods ought to be put into practical operation without delay, but it is quite certain that the really urgent need is for a well-planned and large-scale investigation in which as many as possible of the medical teaching schools and hospitals would co-operate and in which medical men and psychologists would join, each side with a genuine willingness to understand and appreciate the perhaps somewhat different points of view that are involved.

Prof. Smyth rightly points out that a large amount of valuable experience in regard to selection methods and problems has been accumulated during the war. A brief but definite statement of the main practical conclusions that are generally agreed seems now to be desirable, and it is such a statement that I will endeavour to make.

1. No system of initial selection is likely to get beyond the stage of debate unless its results can be systematically and accurately checked against independently determined proficiency criteria. If possible, obviously such criteria should be capable of objective determination, but some progress has been made towards the establishment of a reasonably reliable technique based upon informed assessment, and there is certainly far more hope that such a plan may be satisfactorily established in suitable cases than could have been predicted six or seven years ago.

2. As things are there is almost no operation, trade, or profession having any major importance in civil life for which adequate proficiency criteria have been established. Prof. Smyth's remarks show that no such criteria are agreed upon in the case of medicine, and that if suitability for the practice of medicine "as a whole" is taken as the aim the chance of ever establishing such criteria in a practical sense is small. His own conclusion seems to be the only possible one—i.e., that a few qualities which offer a reasonable chance of being amenable to test and validation procedure should be picked out and made the basis of the more routine or formal aspects of selection. This does not, of course, ignore the other aspects of selection, but war experience has shown many times over that it lightens and often improves the work of those responsible for their consideration. Perhaps Prof. Smyth goes farther than is necessary when he seems to imply that routine selection should be limited to dealing with intelligence only; but this is a matter for discussion.

3. It is quite clear that the primary function of intelligence tests in relation to the professions is at present that of exclusion. As regards some vocations it has become clear that they will tolerate a range of intelligence above as well as below which prospective candidates are little likely to achieve success. He would be a rash man who would assert that there is an upper limit of tolerance in the case of medicine, but everybody agrees that there must be a lower limit, and though this has not yet been settled it ought to be not difficult to determine it by a well-planned investigation, and meanwhile a rough working limit could be achieved and used. It is essential that such a limit should be used intelligently and in conjunction with the less formalized aspects of selection, because for validation purposes it is obviously necessary that a sufficient number of cases should be available for "follow up" who do not in fact make the proposed grade for formal selection.

4. Every important war investigation has shown that it is impossible to separate selection from training. A good selection scheme can be ruined by a bad system of training. A bad selection scheme can, within limits, be bolstered up by a good system of training. It has turned out with truly astonishing monotony that training schemes can be as completely divorced from subsequent operational success as a plan of initial selection can be. Indeed several times over it has been found that initial selection methods which do not agree with training grades do agree far better with eventual operational success. The importance of this, which can scarcely be exaggerated, is that where good operational criteria are lacking there is an inevitable tendency to judge selection methods by the relation of their results to training grades. This may be extremely misleading and unfair.

So serious did problems of this order become, for example, that towards the end of the war a number of investigation teams in the U.S.A. who had been concerned with primary selection were forced to turn their attention wholly to training methods and training

assessments and examinations. Some astonishing facts came to light. Training methods and courses are very often indeed a hodge-podge of different devices. There may have been a good reason for every one of them when it was introduced, but they have come in at all sorts of different times and for all sorts of different reasons and purposes. Training schemes are far more often overloaded than under-loaded, and it is very common to find candidates kept for a long time learning things that the general run of them can perfectly well master in a short time, and for a short time on things which require more prolonged study. The result is staleness in some directions, under-training in others, and that most curious state of affairs in which it is accepted that a candidate's training must almost begin all over again when he goes from the school to his eventual career. In this country the only case I know of a thoroughly validated selection procedure from first to last was one in which selection and training were treated as a single problem. I can see no hope at all for a really successful issue to primary selection in the case of medicine unless medical authorities are prepared to submit existing training methods to a radical investigation and to take a very open-minded part in such investigation themselves.

5. It has become clear that follow-up technique and testing technique are not the same and in a serious investigation should almost certainly be the concerns of different groups. In general the more any type of investigation requires field study the more important it is that a leading part should be taken by people with interests, knowledge, and skill relevant to the field concerned. Whereas the kind of testing which is now under discussion is very largely a technical psychological problem, the follow-up is mainly a matter which is best directed by medical personnel. Fortunately there are now an increasing number of the latter who have also a satisfactory training in normal and experimental psychology. It is this kind of training which is required. Doubtless there are also psychiatric problems involved in the initial selection of medical students, but on the whole, though there is no complete agreement, the weight of recent experience is heavily against mixing up the psychiatric with the normal problems of selection.

6. Tests of intelligence in a general sense, as distinguished from those which have to do with highly specialized skills whether mental or bodily, must employ a variety of principles and a variety of media. The media commonly used are words, numbers, and visual—usually geometrical—forms. All three are required. The principles must include both structural and relational factors, and these have to be treated both analytically and constructively or synthetically. No set of tests which are merely repetitions of the same pattern of problem presented in varying complexity can be regarded as satisfactory.

7. There is impressive evidence, not as yet given much publicity, that the type of intelligence which deals efficiently with the symbols of words, numbers, and visual forms has no necessary relation to another type which deals directly with complex situations in terms of the immediate data of those situations. It seems highly probable that the latter type of intelligence may be very important for certain aspects of the practice of medicine, especially in regard to clinical skill. Any long-term investigation of the value of intelligence tests in initial medical selection should give due regard to this.

These are, I think, the main principles that have emerged from the work of the last few years. There are in addition a great many details which need attention and trial. It is not improbable that several of the conventions which, for very good reasons, are usually observed in the design and presentation of intelligence tests may undergo change. Some of these, for example, are the arrangement of test items in a regularly increasing order of difficulty, the use of one-way questions and answers only, and current practices about time and speed setting. These and other matters, including some of the statistical measures commonly demanded, should not be taken as settled finally.

Further, Prof. Smyth is certainly incautious in one respect. The assertion that coaching and practice make no difference to test verdicts runs a long way beyond established facts. But nobody yet knows for certain what exactly are the implications which the undoubted results of training and practice may have for intelligence test scores.

The practical conclusion seems to me to be this: the time is ripe for setting up a small but influential body of medical doctors and of psychologists with the necessary resources to implement any decisions they may make after discussion. This body should aim at a long-term policy of investigation and also at a short-term policy for immediate, but provisional, application. The latter ought not to be at all impossible provided the probable ratio of candidates to places in those medical schools which would take part in it is known.—I am, etc.,

The Psychological Laboratory, Cambridge.

F. C. BARTLETT.

Classification of Psychological Disorders

SIR,—Instead of criticizing each other on the problems of nomenclature would it not be better if we frankly admitted that it is not possible to pigeon-hole every patient neatly under some simple diagnostic label? This is not the fault of psychiatrists but is due to the complexity of human nature, which exhibits infinite variations. The unique individuality cannot be stretched so as to align accurately upon one of a limited number of Procrustean patterns. By all means let us teach students the distinguishing features of "typical reactions"—depressive, hysteric, anxiety, and so forth—but let us also insist that in a considerable number of cases we have to deal with "mixed reactions," because personalities are mixtures of many artificially separated types.

With the neurotic it is far more important to obtain a complete record of his biographical development than to label a small cross-section of his life. A psychiatrist who is able to say, for example, that the patient is reacting to frustration of occupational ambitions and a state of marital disharmony in accordance with certain behaviour patterns conditioned by various childhood and adolescent experiences is being more practical, and will be able to do something far more useful for his sufferer, than any pundit who is happy only when he can exhibit a clear-cut diagnosis. It is unfortunate, therefore, that some of our over-enthusiastic E.C.T. exponents seem to consider it more important to attach hastily a diagnostic tag to their patients than to make a painstaking study of life histories; hence the statistical fallacies concerning which Dr. Dillon very rightly issues a timely warning (Oct. 19, p. 588).—I am, etc.,

Basingstoke.

I. ATKIN.

Goitre without Bias

SIR,—Few there are, I think, who would deny that surgery as performed by an expert is the method of choice in the treatment of thyrotoxicosis. Nevertheless there are some features which call for discussion. In the first place I am sure that the average doctor would require a lot of convincing if he were told that all the mild adolescent colloid goitres he sees should be submitted to surgery. He would look back across the years and ask himself how many of these goitres have really become toxic, and how few indeed have become malignant. In support of this idea Garlock¹ states that about 2% of thyroid enlargements are malignant, and he informs us that Smith, Pool, and Olcott² emphasize that it may be that undue weight is being attached to the probability of cancer developing in an adenoma. He remarks trenchantly:

"As one reviews the statistics of three or four decades ago, when goitre operations were unusual and patients harbouring adenomata did not accept surgical intervention as freely as to-day, one is impressed by the fact that few cancers of the thyroid were noted, far fewer than would be expected did adenomata present the marked tendency towards malignancy which is generally assumed to-day."

Turning back the pages, we find that in Allbutt and Rolleston's *System of Medicine* it is stated that 50% of patients recovered completely on rest and sedatives, while Osler³ informs us that "Statistics are misleading, as only the severe cases come under hospital treatment. Probably 65% of the patients make a good recovery, and 10% to 12% die." It is well perhaps to remind ourselves that a majority of patients did recover by various methods of treatment, while admitting that these results did not compare with good modern surgery.

With regard to thiouracil, and the new methyl and propyl derivatives which are much less toxic than the former, it is surely too early to condemn them out of hand. It is true to say that many patients have shown complete remissions, which have lasted so far under the administration of these compounds combined with rest in bed for a few weeks at the outset. Admittedly it does require a lot of experience to determine which patients may be suitable for medical measures, and above all when to advise operation so as to give the surgeon a fair chance. Much could be said did space permit on the question

¹ Nelson's *Loose Leaf System of Medicine*.

² Smith, L. W., Pool, E. H., and Olcott, C. T., "Malignant Disease of Thyroid Gland: a Clinico-pathological Analysis of 54 Cases of Thyroid Malignancy." *Amer. J. Cancer*, 1934.

³ *Text Book of Medicine*, Osler and McCrae.