

for his positive results. In reference to the cases of loss of the musical faculty mentioned by Dr. Urquhart, it is true that such cases stand recorded in the literature, and they aim at showing that this faculty is located at the tip of the temporal lobe, but this localisation is not finally proved; indeed, it is only by an analysis of a further accumulation of work, by earnest co-operation between the physiologist, the pathologist, the clinician, and the histologist, that this and many other difficult points can be definitely settled. I am glad to have heard Dr. Bevan Lewis' name mentioned, because there is no man for whom I have a greater admiration as a pioneer in cerebral histology. We would have been saved years of labour if his work had been duly recognised; personally I have found his descriptions of the "giant-cells" in man, the cat and the sheep so exact, that, after going over their area of location many times, I would not like to alter a single word he has written. I have been asked whether oculo-motor movements do not result from stimulation of the calcarine area; they certainly do, as Sherrington and Grünbaum have clearly shown; and I may further mention that there are several other parts of the brain special stimulation of which produces such movements. Thus, they have been obtained from the angular gyrus—and this is one of the points in Ferrer's argument that the same gyrus constitutes the "word-seeing" centre. But I think the most constant part from which eye movements have been elicited is one well in advance of the hand area. Horsley and Bevor first mapped out the field in the Orang, and their results have been confirmed by Sherrington and Grünbaum.

The Educational Treatment of Young Epileptics.⁽¹⁾ By
G. E. SHUTTLEWORTH, B.A., M.D., formerly Examiner of
Defective and Epileptic Children, School Board for London.

I HAVE thought that at the present time, when there is a prospect of systematic school provision being made for epileptic children in accordance with recent legislation, the attention of this Association might usefully be called to the necessities of the case.

I may just remind the meeting that legislation on the subject has been the outcome of much preliminary discussion. The Charity Organisation Society appointed a committee in 1890 to consider and report on the public and charitable provision made for the care and training of feeble-minded, *epileptic*, and crippled persons; and a book embodying the conclusions arrived at with regard to the two latter classes was published in 1893.⁽²⁾ Later the Government appointed a Departmental Committee to inquire and report (*inter alia*) as to the provision of suitable elementary education for epileptic children; and this committee reported to the Board of Education in 1898. The outcome was an Act of Parliament passed in the following year "to make a better provision for the elementary education of defective and epileptic children in England and Wales."

This Act had, unfortunately, two flaws which have militated against the provision of suitable school accommodation for the poorer class of epileptic children: the one, that the Act is not compulsory on all school authorities, but merely adoptive by them: the other, that in the original Act a limit of fifteen children only to be lodged in any one boarding-house of a residential school, with a limit of four such houses to an establishment, was unwisely imposed. This restriction, however, has since been relaxed by an amending Act, passed last year, giving discretionary power in this matter to the Board of Education, whose minute now permits thirty to be accommodated in a single house.

The Act of 1899 was, however, taken advantage of by the London School Board for a complete official examination of all the epileptic children of school age known to their officers, and in 1900 and 1901 this work fell to my lot. As the necessities for special methods of education in different classes of epileptics are illustrated in my report I may venture briefly to summarise it as follows:

Of 470 cases examined—

- (a) 17 *per cent.* seemed fit to continue in normal schools.
- (b) 27·5 *per cent.* were so far mentally impaired as to require instruction in “special classes” for defective children.
- (c) 40·0 *per cent.* required to be cared for and taught in a residential school for epileptics.
- (d) 15·5 *per cent.* seemed unfit for any education, requiring only medical and nursing care.

The (a) class included cases of a mild type or with infrequent attacks, not producing mental impairment or interfering materially with the discipline of the ordinary school.

The (b) class included cases with some degree of mental impairment, but whose fits were so slight or infrequent as not materially to interfere with the more individualised discipline of a special class for defective children.

The (c) class included cases in which fits were so frequent or so severe—or both—as to incapacitate a child from attending an ordinary or special school on account of disturbance of discipline involved, but yet possessed of educational capacity.

The (d) class comprised the residue of unfortunates who from physical or mental conditions—or both—seemed only suitable for hospital, asylum, or other custodial treatment.

Since the reception of this report a large number of children whose parents kept them at home merely on the ground of their being subject to fits have been brought into school attendance under heads (*a*) or (*b*); and last year negotiations were in progress for the school children included in class (*c*) to be accommodated in connection with Chalfont Colony, the board and care to be under the committee of the voluntary Association managing it, the school equipment and instruction to be provided by the London School Board. Owing to the impending absorption of that body by the London County Council the sanction of the Board of Education was withheld, and the matter is still in abeyance; but for the sake of the (at least) 150 children excluded (as a consequence of my report) from London elementary schools on account of epilepsy, it is to be hoped that a speedy arrangement will be effected.

Apart from the action taken by elementary school authorities, there exist in England (but not in Scotland or Ireland) certain voluntary associations for promoting the welfare of epileptics—including children—and we may briefly note what has been done by these in the way of education. The oldest and largest institution in England is that at Maghull, near Liverpool, now containing 204 patients of all ages and various social ranks. Here a day school for twenty-one younger inmates is carried on, and continuation classes for adults meet two evenings a week, and are attended by 103 students. The subjects taken at the day and evening schools are as follow: reading, writing, arithmetic, drawing, singing, history, geography, wood-carving, drill, and kindergarten work. The Government grant for the evening school was £57 1s. last year. The junior school is not under Government supervision in consequence of the committee preferring freedom from certain stringent rules imposed by the Board of Education. Dr. Alexander (the consulting medical officer) writes in appreciatory terms of the benefits accruing to the children from school attendance as regards conduct and self-control, even in such as from mental deterioration, defect of memory, etc., do not make any great advance in their studies.

At Lady Meath's "Home of Comfort" for epileptic women and girls at Godalming, accommodating about eighty patients (some of them paying cases), there are, in a branch establishment, eighteen children under twelve years of age. These have

regular school instruction and physical drill, and after twelve they have a good deal of industrial training, *e.g.* in basket-making, sewing, and housework. Some few work in the garden under a lady gardener.

At the Lingfield Training Colony, Surrey, established under the auspices of "the Christian Union for Social Service," there are seventy children in three homes, and another home for twenty-five additional cases is in course of erection. The children in two of the homes attend school, the third is a laundry home for older girls. The Rev. J. L. Brooks, the Resident Director, prefers to "take children as young as possible, and they follow a simple life of regular lessons, with abundant out-of-door life, and regularity of rest and play"; a simple but efficient dietary with almost absence from drugs is laid stress on by the Director. The school course includes kindergarten work, the three R's "gradually," knitting, basket-making, fretwork, needlework, and carpentering for some of the older boys. There is also a branch home for from sixteen to twenty boys at Starnthwaite, Westmoreland, one house being reserved for patients paying from £1 to £1 5s. weekly.

The Chalfont Colony has been already alluded to as destitute at present of children of school age, though two homes—for twenty-four boys and girls respectively—were actually erected previous to the passing of the Act of 1899; but, owing to its restricting the number of residents in each house to fifteen, these were diverted to another purpose. The Board of Education now permits as many as thirty to be boarded in one house, so that it is to be hoped that very shortly the Executive Committee will find it practicable to realise what it describes (in its last report) as "one of its chief aspirations—the extension of its work to the care of *young* epileptic children."

A Roman Catholic Sisterhood has recently opened a residential school for fifty-six epileptic children of both sexes at Much Hadham, Herts. The buildings are strictly in accordance with the requirements of the Board of Education; the school arrangements are under Government inspection, and conducted by a certificated teacher.

At Sandlebridge, Cheshire, a large institution for epileptics has been erected by the Lewis trustees, and will shortly be opened. It will provide, not only for the care of adults, but for the education of epileptic children.

From this general sketch of what has been done in Great Britain for epileptics of school age it is evident that the provision made for them is totally inadequate. Assuming that only one child in 1,000^(?) elementary school children is epileptic, and that not more than half require to be provided for in residential institutions, there is need in England and Wales for educational homes for about 3,000 children of this class. That actually provided is for less than 200. Many epileptic children, for lack of special provision, languish in the infirmaries or imbecile wards of workhouses, or are relegated, if any dangerous symptoms present themselves, to the county lunatic asylums. Of course, insane epileptic children are properly placed in the latter, but appropriate training in well-organised residential schools would tend to prevent mental deterioration in many cases.

As regards provision for education of children of the better social class, there is but little in this country, though some of the schoolmasters who nowadays run schools on "rational" lines—that is to say, where physical and manual training, nature-study, and simple experimental science form an important part of the curriculum—are not unwilling to receive mild cases whose intelligence is not much impaired. The difficulty, of course, is the risk of disturbance of school discipline which the occurrence of a fit, even at long intervals, involves; and I am inclined to think that Chalfont would do useful service were it to provide educational care for a certain number of paying patients of the better social class, as is indeed done at Maghull and Starthwaite.

So far I have taken it for granted that educational privileges must not be denied to epileptic children simply because they are epileptic. Such a proposition hardly needs arguing before this meeting; but as there is a lingering notion, even with some medical men, that instruction during school age is not good for epileptics or is thrown away upon them, I may perhaps be allowed to support my position by citing certain distinguished authorities on the medical aspect of the subject. Dr. William Alexander, of Liverpool, from lengthened practical experience of Maghull patients, writes: "Epileptic children should be educated physically, mentally, and morally, anything like over-pressure being avoided, and by the very best and most judicious teachers. It is only by securing a satisfactory development of

all the faculties of the epileptic child that we can hope to render stable the supposed abnormal instability of the nervous centres. In regard to the danger of allowing these children to play at games that might possibly be dangerous, our conviction is that epileptics rarely have fits when all their faculties are on the alert." "It is a great mistake to allow epileptic children to be idle," says Dr. Ferrier; "it simply increases the instability of their nervous system." Dr. Spratling, of the Craig Colony, writes that "labour is the greatest therapeutic agent in curing epilepsy," and this maxim applies, I think, equally to children and to adults. From my own observations I should be inclined to say that well-arranged and suitable occupations both in and out of school are of positive benefit by diverting nervous energy into normal channels and diminishing tendency to abnormal discharge in the form of fits. In not a few cases I have seen where parents have reported frequent fits when the child is kept from school, modified but regular instruction has appeared to be positively beneficial in diminishing the liability to attacks. Methodical occupation and games in the open air are undoubtedly salutary. Manual work in the garden or on the farm are especially useful, and such work, properly supervised, admits of being made educational. As regards sports, of course discretion must be used; those distinctly risky (*e.g.* rowing) must be avoided, but lawn-tennis, cricket, and even hockey and football, need not be tabooed.

In America, where matters are more advanced than in England, several colonies have been established for dealing with epileptics, juvenile as well as adult. Dr. Spratling, Superintendent of the Craig Colony, New York State, writes in one of his reports that "the greatest work this Colony will ever do will be with the *young* epileptic." In connection with this colony there is a regular school establishment, each young patient capable of instruction attending two and a half hours daily, girls in the morning, boys in the afternoon. Female teachers are employed, and physical and manual training form a large and important part of the school exercises. Careful records, entered up monthly, are kept of the individual pupils. Dr. Clark well remarks that the education of the epileptic child must necessarily proceed on somewhat different lines from that of the merely feeble-minded child. With the epileptic there is much variation from time to time in capacity to receive

instruction. One day it may not be very different from that of the normal child; the next it may be almost *nil*; and the aim of the teacher must be to catch the pupil when his or her mind is in a condition to assimilate the knowledge sought to be imparted. When fits are occurring frequently the attendant mental weakness is apt to produce loss of memory and incapacity for concentration. Pupils therefore must be considered individually by the teacher and not merely as members of a class. The teacher in a school for epileptics requires, indeed, to be endowed with rare discrimination, infinite patience, and the faith that "hopeth all things," for epilepsy is an intermittent affection, and what the pupil learns easily to-day may be beyond his power to-morrow, and on the third day all that he has previously learned may seem entirely effaced from memory. Happily, however, in most cases it is not a permanent effacement, for on the cessation of the periodic paroxysmal disturbance which epilepsy causes former mental impressions are revived. From this point of view we may regard the progress of the epileptic's education as almost of a tidal character, advancing by undulations, which may again recede even beyond their line of origin, but still, in favourable cases, like the *rising* tide, overcoming obstacles and eventually reaching the high-water mark of knowledge. It is true that if the disease prove persistent or progressive the tide will fall back. This, however, should not deter from attempts at instruction in any apparently suitable case, and there is no good reason to deprive epileptics, as a class, of the educational birthright which all civilised nations concede to their children.

From the observations submitted I think we may deduce the following general propositions:

1. That epilepsy in children *per se* should not be regarded as a disqualification for education.
2. That as regards the elementary school class, all children reported epileptic should be scheduled by school authorities and submitted for discrimination by their official medical examiner as to their school treatment or otherwise, somewhat on the lines sketched out on page 663.

It is obvious that the educational treatment of epileptic children must be *medico-pedagogic*, the doctor and the teacher working hand-in-hand. The school time-table must necessarily be a matter of medical concern. As a rule the lesson periods

should be shorter, and the intervals of repose longer than those appropriate for normal pupils of the same age. Physical exercises and manual occupation (Slojd, etc.) should be judiciously interwoven with lessons requiring more abstract mental application. Whenever circumstances permit, instruction and occupation should be given out-of-doors; and nature lessons of a practical character—leading up later to horticultural and agricultural work—should form part of the school curriculum. For all children, indeed, but for epileptic children especially, it seems to me, education should be of such a kind as to cultivate the observing powers so that they may have eyes to see

“Tongues in trees, books in the running brooks,
Sermons in stones, and good in everything.”

(¹) Read at July Meeting of Medico-Psychological Association.—(²) *The Epileptic and Crippled*, London, Swan, Sonnenschein & Co.—(³) This would seem to be about the proportion existing in the London School Board jurisdiction, taking (in round numbers) 500 epileptics to 500,000 children scheduled for school attendance. Dr. Oswald Berkhan, in a paper, “Schools for Epileptic Children,” read before the International Congress on School Hygiene at Nuremberg, stated that in the Rhine provinces and Westphalia the proportion of epileptic school children to *inhabitants* had been ascertained by an official enumeration to be 2 to 10,000, as was also the case in Frankfort and Potsdam. On this basis the number of epileptic children to be provided for in England and Wales would be in excess of that stated in the text. In 1903, out of 16,830 children attending the public elementary schools of Brunswick 42 were epileptic (1 in 400).

DISCUSSION.

At the Annual General Meeting in London, July 21st, 1904.

The PRESIDENT.—We are much indebted to Dr. Shuttleworth for this paper. He has brought forward a point which is a practical difficulty always among those who have to treat children, whether among the poorer classes in out-patient departments of hospitals or in private. And one is glad to hear from him that he considers many epileptic children who are looked upon rather as being past repair still ought to be carefully educated; and I think his statement is very important about the doctor working in conjunction with the teacher, or rather the teacher working always under the supervision of the doctor. We shall be glad to hear any discussion on the subject.

Dr. SAVAGE.—It seems to me that two good things are represented in this paper. The first is that it is certainly not correct to say that because a child is an epileptic he is not educable. What Dr. Shuttleworth has pointed out, and what my experience has confirmed, is that judicious education, such as our President and Dr. Shuttleworth recommend—the education supervised by some medical man—is to be carried on, and carried on with great benefit, not only to the child, but also to the epilepsy. And again, I think one has got so far as to recognise that epilepsy is a curable condition, if it is treated soon enough, in a great many cases. There is another thing which pleased me very much indeed, and that was that I did not hear any reference to bromide. I admit, however, that there are conditions in which the doctor, working with the schoolmaster, may find bromide useful. One is certain that the contention of Dr. Shuttleworth is the contention which all of us

who have had experience will confirm, *vis.*, that a modified, persistent, methodical use of the mental faculties is beneficial to the young epileptic.

Dr. RAYNER.—I would like to thank Dr. Shuttleworth for bringing forward this subject. One feels how much necessity there is for great care in the treatment of early cases of epilepsy as in other mental conditions in childhood. Many of the epilepsies in childhood one finds are due to stomach conditions and other forms of peripheral irritation which, when they are relieved, bring relief to the epilepsy—that is, if they are not made worse by the injudicious use of bromide. When I stopped using bromide at Hanwell many years ago people were inclined to think I was very extreme, and I am glad that the course I adopted with regard to the use of bromide in epilepsy is now very generally accepted. There I found that the tendency, even in old chronic cases of epilepsy, was always towards improvement if there were not accompanying physical conditions which caused deterioration of health. Year by year the fits became less frequent, and the general trend was towards better health. I am sure there is the same tendency in early childhood, and that there are many cases which lose their fits at the second dentition, while many more lose them before puberty. I think if these early cases of epilepsy are carefully and thoroughly treated and trained and educated they are still more likely to lose their fits. Therefore I am much interested in hearing Dr. Shuttleworth's paper, and especially hearing him insist on the great value of steady daily muscular occupation. Among my patients I have noticed that when a man was steadily occupied in some light muscular task he went on improving and his fits became less and less frequent. If from any cause he threw up his occupation and became idle and got into the rut of unoccupied people, his fits began to increase in frequency.

Dr. MILSON RHODES.—I have visited most of the epileptic institutions in America, and there is hardly a State in America which cannot show a better and larger institution than anything we have in England, and I think we should provide for this class of cases. With regard to Dr. Shuttleworth's point about employment for these children, it is of no use establishing epileptic schools without plenty of land, because in all the best institutions you will find the cases do best when employed on the land, and they do worst where they have a large amount of bromide of potassium administered to them. Bromide of potassium is not a cure for epilepsy. It may moderate some cases, but I am certain that degeneration goes on faster when you give bromide than when you do not. Another matter is that many of these institutions are under clerical or lay heads. I am glad to say the Lewis Trustees have appointed a medical man as superintendent, and if you are to get good work out of epileptic colonies, wherever they are, you must have medical superintendents for them.

Dr. ROBERT JONES.—I would like to utter one word of protest about that change in fashion with regard to the treatment of the epileptic. I believe most emphatically in bromides, and if Dr. Savage had been able to stay one minute I should have applied my protest against a fashion in medicine to his own teaching. The great thing is, as he used to teach, to break the habit in regard to epilepsy, and I do not think there are any drugs which will enable you better to break the habit than bromides. I have had a patient from Pastor von Bodelschwink as a private patient at Claybury, and I have had some experience at Earlswood amongst children, and I feel strongly that the beneficial effect of bromides should not be allowed to disappear because of changes of fashion in drugs. There are two things necessary. Firstly, the medical officer should watch against auto-intoxication. Half the fits are due to a want of proper supervision in relieving constipation. With regard to the bowels, they should be opened every day. The tendency of these patients is towards constipation. Secondly, break the habit of the fits, which can best be done either by bromides, or these in combination with borax. I was glad to hear Dr. Shuttleworth introduce the question of penal drill, as he called it, in the open air. I believe graduated exercises and proper drill in the open air—and I have had a good deal of experience with the application of these under properly trained governesses—is an absolute necessity. We know that the first outburst of mental effort in the baby is that he kicks and he thinks. The first chain in thought is the association of muscular movements. There is first spontaneity, and then the association of a movement with some purposive effect, and if you want some remedy against epilepsy with its terrible deterioration, as is shown by failure to fix the attention, use physical drill. I was very much interested in the remarks of Dr.

Milson Rhodes. He is not an expert in our own branch, but no one has devoted so much time, or used his great powers of administration to such valuable practical effect, as he; and I am sure all members of the Association are pleased to have him amongst us, and his recorded experience has done much to benefit the treatment of the mentally affected. In conclusion I raise a strong protest against what is seemingly the fickleness of fashion in the treatment of disease.

Dr. RAYNER.—I object, sir, to Dr. Jones' application of the word "fashion" to the giving of bromides. I left off giving bromides on conviction, on reasoned conviction, and on observations made thirty years ago. I think I did not change the fashion, and I have had no desire to change it since. I have had many opportunities since then of confirming myself in the views I hold, and I think Dr. Jones has just given me a good example in insisting on attention to the bowels and other irritating conditions of the body. If that were always done, he would find there was no need for bromides.

Dr. BOND.—One remark made by Dr. Shuttleworth I was struck particularly by. He was quoting somebody who had stated that when all the mental faculties were on the alert, the seizures were decreased. That rather surprises me, because from what I have observed among the few whom we do put to the higher intellectual occupations, when there is the slightest pressure then there are epileptic manifestations, either fits or mental trouble; and my brief experience is against anything like the production of any severe mental effort. I am strongly of opinion that the patient with epilepsy should have the opportunity of a reasonable amount of education, but I would not suggest that any high intellectual attainment should be attempted. So long as the patient is able to create happiness out of his environment for himself, and to make himself useful, that should be about the sum total; all the rest should be of an entirely manual character. I would join with Dr. Jones in his remark about bromides, and I think that where bad effects have been manifested—and there can be no doubt that such cases have arisen—it is because the condition of the bowels have not been attended to, or, more important still, the question of exercise. I give a laxative with the bromide. If you give bromides to insane patients, the maniacal and others, and if they are at all kept in confinement, you get bad results, whereas if they have regular and proper exercise, good results ensue.

Dr. TAYLOR.—My experience at Darenth and Earlswood entirely bears out that which Dr. Bond has just said with regard to the technical instruction of these patients. I would like to ask Dr. Shuttleworth one question on the subject of diet for these patients. Has he found any benefit from knocking off meat in the case of these epileptics? I have not kept a record of the results of my experiments, but I have tried it, and there seemed to be no beneficial effect whatever.

Dr. ANDRIEZEN.—I would like to ask if Dr. Shuttleworth has tried the method so widely adopted in France, *vis.*, that known as salt starvation, in the treatment of epileptics. Several French doctors of large experience have tried it, and it is said to be successful in diminishing the number of fits. It consists in eliminating all salts from ordinary food and substituting a little bromide for table salt. With regard to bromide, there is one point which is not particularly insisted upon, but which I think we ought, as physiologists, to pay attention to; and that is, that the bromide which is largely prescribed is the potassium bromide. Why should that be, when it is known from experiments that it is a cardiac depressant or poison? Since I entered upon the speciality of mental diseases I have never prescribed potassium bromide; it has always been the sodium or ammonium salt. I have used a combination which was recommended by the late Professor Wood, of America, a combination of ammonium bromide with antipyrine. I made experiments with it for several months at the West Riding Asylum and at Darenth, and used it with benefit in every case thereafter; it had a brightening effect, and it diminished the stupor to which many epileptics were naturally subject.

Dr. SHUTTLEWORTH.—I am sure I am very much obliged to you all for the kind attention with which you have listened to me, and for the comments which have since been made. My paper was essentially upon the educational aspects of the treatment of young epileptics, though I should be the first to admit that matters of diet, and even matters of medication, occupy a very important relation to educational methods. I was asked a direct question about diet, and I

may say I have had some little experience of it for some time as a routine treatment. At one period all our epileptic imbeciles at the Royal Albert Asylum, Lancaster, were kept on a vegetable diet for, I think, six months; and then we let a certain portion of them go on with their ordinary diet for another three months. I have not the figures in my mind, but I know the general result was that we did not find very much benefit from the abstention from meat. Very much more benefit was to be traced to the fact of the food being properly comminuted. It was not so much that meat, as meat, as a nitrogenous food, produced epilepsy, as that very frequently the stomach was disordered by the tendency which epileptics have to bolt lumps of meat. If the meat is first passed through a mincing machine there is not that risk. Dr. Bond mentioned a quotation which, I think, was from Dr. Alexander, of Liverpool, with regard to the faculties being on the alert. I think it was his plea that these epileptic patients should not be kept from engaging in such games as cricket, so long as their attention was agreeably kept on the alert, and that they would probably not then have fits. I agree with what fell from Dr. Bond about the inappropriateness of working their intellectual faculties at anything like high pressure, as it would be prejudicial to do so.

After further discussion in which Drs. Carswell, Douglas, Mills, Rayner and Shuttleworth joined, it was agreed that the following resolution be transmitted to the Parliamentary Committee:

"That the Parliamentary Committee of the Medico-Psychological Association be requested to consider the desirability of making the Act of 1899, referring to the education of defective and epileptic children, compulsory on all educational authorities, and not merely adoptive as at present."

The Statistical Tables. By CHARLES A. MERCIER, M.B.

The criticism that, at the Annual Meeting, I applied to Tables IV and VI, was purely destructive, and while it was, as I think, efficacious, it is open to the retort that the criticised tables must stand, unless I can suggest something better. The object of this present communication is to suggest tables which shall not be open to the objections which I have urged against those proposed by the Statistical Committee.

Table IV must of necessity suggest and contain a classification. It is bootless for the Committee to disclaim the intention of classifying. So long as such a table, for such a purpose, is included in their recommendations, they cannot escape from the onus of presenting a classification. As the scheme which is now adopted by the Association will determine in practice the classification which will prevail, in this country at least, for many years to come, it is very desirable that it should be provisionally satisfactory. By this I mean, that it should represent and embody the general state of our knowledge at the present time; that it should receive very general approval and support; and that it should be sufficiently elastic to be adapt-