

style it seems designed for the layman, but in matter it is more suitable for the medical practitioner. Rules for the application of the breathing exercises are given, and the amount of the respiratory work to be done by the patient is specified for each disorder. It would seem that Dr. Pescher expects too much of his method.

The authors of a little French book, the clinical interpretation of laboratory reports,⁶ have set out in tabular form the conclusions to be drawn by the medical man from the reports he receives on the specimens sent to the pathological laboratory for examination. Comparatively little is said as to the methods employed; given his report, the medical practitioner will find in this book all the different interpretations that it may bear, or all the diseases or disorders it may suggest. At the end of the volume is a synoptic table in which the various diseases come first, and have opposite to them a list of the pathological changes in the blood, urine, faeces, and so forth, to which they may give rise. The book is well arranged and full of information, but has the fault of increasing the separation between clinical diagnosis and laboratory diagnosis that is so frequently deplored by physicians and pathologists alike.

The first number has appeared of a bi-monthly medical review entitled *Les Néoplasmes*, which is to be devoted to original articles, abstracts, and reviews dealing with the etiology, pathology, and treatment of tumours, malignant and benign. In addition to an analytical review of current literature the first number contains original articles on the red blood corpuscles in cancer, and on the treatment of cancer of the tongue. The new journal is published by Messrs. Vigot Frères, 23, Rue de l'École de Médecine, Paris, VI^e, and the annual subscription (foreign) is 18 francs.

The name of the *Journal of Orthopedic Surgery* (Boston, U.S.A.) has been changed to the *Journal of Bone and Joint Surgery*; it will be published quarterly.

⁶ *Comment Interpréter en Clinique les Réponses de Laboratoire*. Par Eugel, Delater, and Zoeller. Paris: A. Maloine et Fils. 1922. (Cr. 8vo, pp. 139. Fr. 5.)

MEDICINAL AND DIETETIC PREPARATIONS.

Phyllosan.

PHYLLOSAN is a preparation made up in tablets; each tablet is stated to contain 0.03 gram chlorophyll and 0.005 gram iron. The agents in this country state that the preparation is known by the name phyllosan in English-speaking countries, in Germany and Switzerland as chlorosan, with or without the name Buergi, and in Spain and Italy as foliosan.

The therapeutic value of chlorophyll was discovered by Professor E. Buergi, of Berne. He and his pupils made extensive laboratory experiments upon the action of chlorophyll on anaemia in rabbits, and also made clinical observations on the action of chlorophyll combined with iron in anaemia and various other diseases. Buergi^{1,2,3} found that chlorophyll, when given to rabbits made anaemic by bleeding, had an action equal to that of iron in stimulating blood regeneration, and that a combination of chlorophyll and iron was much superior to either substance given alone; it was also found that chlorophyll and iron caused an increase in the haemoglobin content and erythrocyte content of the blood of normal rabbits.⁴

From clinical observations Buergi concluded that a combination of chlorophyll and iron was much superior to any preparation containing iron alone in the treatment of chlorosis and of secondary anaemias of various types. Buergi also found that a combination of chlorophyll and iron was of great value in the treatment of numerous diseases, particularly tuberculosis, cases of cardiac disease due to weakness of cardiac muscle, arterio-sclerosis, and cases of general debility. He concluded that chlorophyll acted as a general stimulant to the body tissues, and increased the vital force of the patient.

Buergi prepared a combination of chlorophyll and iron which he termed chlorosan, and this has been put on the market in England under the name of phyllosan. Phyllosan is stated to be prepared according to Buergi's directions, and is advertised in a pamphlet in which Buergi's claims as to its extraordinary therapeutic value are fully set forth.

The obvious question at once arises as to why the administration of iron, together with the addition of green vegetables to the diet, should not produce the same effects, only at much less cost, as those produced by the administration of phyllosan. Buergi meets this objection by saying that chlorophyll is not absorbed when given in its natural form, and that it is only of therapeutic value after it has been submitted to special purification. The results obtained by Buergi's pupils agree completely with those obtained by Buergi himself, but we can only find record of one research upon the action of phyllosan which was done outside Professor Buergi's laboratory; it was performed by Dr. W. Loeffler,⁵ who made extensive chemical, pharmacological, and clinical tests as to the action of phyllosan (or chlorosan), and obtained negative results. Loeffler found that the phyllosan tablets contained less than 0.003 gram of chlorophyll, and calculated that 10 grams of spinach contained as much chlorophyll as fourteen phyllosan tablets. He found that phyllosan was inferior to Bland's pills in the treatment of anaemia, both in the laboratory and clinical tests. He considered that there was no certain evidence that chlorophyll had any therapeutic action, and argued that even if chlorophyll had a therapeutic action it was unlikely that the minute amounts present in phyllosan would be effective. These conclusions naturally evoked a lively controversy in the Swiss medical press.⁶

It is very difficult to decide on the merits of a preparation whose action is a subject of acute controversy. The chief laboratory evidence that phyllosan has any therapeutic action depends on the results of the experiments upon rabbits made anaemic by bleeding; experiments of this nature are, however, notoriously uncertain, on account of the great individual variations in different animals.

It is unnecessary to point out how difficult it is to obtain reliable evidence from clinical observation as to the action of drugs upon such diseases as chlorosis, tuberculosis, and general debility. In spite of the expressions of opinion by Buergi and his pupils quoted above, it still appears to us that the action of chlorophyll in experimental anaemia is extremely uncertain, and that the therapeutic value of phyllosan is the subject of a still unsettled controversy.

The agents for phyllosan in this country are the Chlorophyll and Chemical Corporation, Ltd., 26, Coventry Street, London, W.1.

ABILITY IN CHILDREN.

In the days when schools and classes were still small an observant teacher might gain a very good knowledge of the individual capabilities of his pupils, and his judgement of ability did not always correspond with the show that a pupil might make in class work or in examinations. The advantages of the direct and intimate knowledge which the teacher of a small class or a small school possessed is impossible of attainment in modern schools, where the number of pupils runs into several hundred and a class may total forty. In addition to this, the organization necessary in large schools requires that pupils should pass from form to form or standard to standard at reasonably short intervals, so that a pupil knows many teachers but few teachers know the pupil.

To make up for the loss of the old pedagogue's intimate knowledge of the ability of a pupil many endeavours have been made to measure the mental ability of children apart from the routine knowledge to which they may have attained by diligent attendance at school. This work is inseparably associated with the names of Binet and Simon, two French investigators, whose tests have been generally accepted as the basis for a standardization of tests of mentality which can be of practical value.

The London County Council, the largest elementary education authority of the country, has issued in a substantial volume⁷ a series of memoranda prepared by Mr. Cyril Burt, its psychologist on "mental and scholastic tests." In the first he considers in detail the Binet-Simon scale and the practical methods of applying it; in the second he discusses the theoretical validity of the results of tests made with the

¹ Buergi: *Correspondenz-Blatt für Schweizer Aerzte*, No. 15, 1916.

² Buergi: *Therap. Monatshefte*, 32, 1918, pp. 1, 33.

³ Buergi and others: *Biochem. Zeit.*, 88, 1919, p. 256.

⁴ Grigoriev: *Biochem. Zeit.*, 98, 1919, p. 284.

⁵ Loeffler: *Correspondenz-Blatt für Schweizer Aerzte*, No. 46, 1918; No. 48, 1918, pp. 1521, 1618; and No. 49, 1919, p. 879.

⁶ Buergi: *Schweizer Rundschau für Medizin*, No. 4, February 21st, 1919; *Correspondenz-Blatt für Schweizer Aerzte*, 49, 1919, p. 1604.

⁷ *Mental and Scholastic Tests*. Report by the Education Officer of the London County Council submitting three memorandums by Mr. Cyril Burt, M.A., Psychologist on "Mental and Scholastic Tests." London: P. S. King and Son, Ltd. 1921. (Med. 8vo, pp. xv + 432; illustrated. 21s.)

scale; and in the third he sets out a provisional scale of educational tests of attainments.

The school examination is a fair test of knowledge of school work, but it is a poor measure of capacity, and ignorance of school learning is no proof of defect. The argument that where attainments are meagre ability must be low will always be fallacious. Poor health, poor homes, irregular attendance at school, lack of interest in the subjects of instruction, want of will to learn them, or a higher order of diligence, of intelligence which enables the scholar to perceive their relative unimportance, are commoner causes of inability to spell or calculate than an inherent weakness of intellect or genuine defect of mind. The dull are usually backward, but the backward are not necessarily dull. To affirm the contrary would not be true, but would be nearer the truth. A high real ability does not always imply a high standard of school work. This ought to be a platitude, for history abounds in illustrations of unsuspected ability bearing rich fruit in adults who as children were reckoned indifferent scholars. Genius has laws of its own and must be left out of account, but if there were means of discovering embryo ability at an early age and giving its possessors the best advantages that our clumsy educational scheme can afford, the richness of the real capacity of the child might, it is argued, be brought to fruition without risk of such loss as must occur under the conditions at present imposed on us by pedants and doctrinaires. Similarly there are children of poor ability who struggle through the school curriculum with a difficulty that may be reflected in a diminished standard of health; were their disability discovered in time a modified curriculum would enable them to develop to the best advantage any innate qualities they may possess. Some perhaps have none, but it is waste of life and happiness, so stupid as to be wicked, to cause a boy who has sympathy with plants to waste his time in learning to spell. No really good gardener can spell English. He is too observant, too much in tune with Nature. To pass judgement upon the mentality of the child is, however, part of the duty of the teacher, and he should therefore be equipped with a knowledge of modern methods of examination of mentality, which he may learn to use within his limitations.

After discussing the standard Binet-Simon scale, Mr. Burt considers the difficulties presented by its use in England, and suggests modifications to render it better adapted to our needs, for, as Dr. Simon expressed it, "La bonne traduction est elle qui d'après l'expérience laisse l'épreuve à l'âge auquel elle est placée." Some of these tests might very well have been even further modified to suit English tastes. The picture tests are taken straight from the French originals. There are three, and all are of the most melancholy description, and very foreign to our eyes. The first is a half-tone reproduction of a drawing showing a pair of unhappy-looking individuals, man and boy, hauling at a rickety handcart laden with damaged goods. It is suggestive of a retreat in Poland. It is not even definite in its drawing, for a sharp boy of 9, on being shown it, and asked what it represented, immediately pointed to the boy's head and said: "A boy with a dog's head." And sure enough the right hand of the man and the tousled head of the boy do together make a very good head of a bobtailed sheep-dog. It turned out on inquiry that this boy had been exercising his wits with puzzle pictures, in which he was invited to "find the villain" and the like. Mr. Burt defends the transfer of these drawings, but we must admit a preference for the alternatives introduced by other workers. The line drawings for comparison of faces, and for the discovery of missing features, are equally unpleasant. All these figures have been reproduced in many textbooks on these scales, and it is time that some drawing less pathological in appearance should be shown to the children. There is no merit in melancholy ugliness. The Porteus maze tests are not altogether free from difficulty, seeing that the response to them may be very unequal: one small boy of 7 years, who has not as yet shown any special ability, did the whole series up to that supposed to be suitable for the age of 14 years with little or no hesitation, and then asked for more. We agree with Mr. Burt on the desirability for intelligent translation of these tests, and think that he might have carried his modifications a little further with advantage.

The results of the use of these tests on London children tend to show that a mental age cannot be so definitely defined as Binet seems to have supposed. There is a very considerable overlap. "To measure intelligence by the yearly stages of intellectual growth is like measuring stature by means of a tape, where the lines that separate the inches

are half defaced and the figures so broad, so blurred, and so ill centred that any one division may easily be confounded with the next."

The tests have been largely used also for the determination of mental deficiency, and it is interesting to note the results thereby obtained. The special school children (mentally defective) of London form some 1.5 per cent. of the total school population. Analysing these defective children, it is found that only one-third of them, or 0.5 per cent. of the grand total of all children, are so defective as to warrant their being classed as "institutional" cases, one-third will need "supervision," and the other third are only to be reckoned defective owing to the defects of our educational system. That is a very satisfactory fact to be elicited. The more general application of these tests seems to show that there is discernible an effort, and an effort by no means sterile, to coax and coach the milder dullards of the ordinary schools to a grade more closely fitted to their actual age, so that their acquired attainment becomes greater than their inborn ability. By contrast the children who are most retarded mentally appear still more retarded educationally; and the children with superior talent are largely kept back scholastically, depressed to a stage which answers more closely to their actual years. The essays before us unmask a strong disposition to level a child's school work up or down towards the common standard for his age. That is a very grave reflection upon the effect of standardization of educational work, and one that needs much thought.

Some of the results show that the Binet-Simon scale is less a pure test of mental capacity than is sometimes thought. Mr. Burt writes: "There can be little doubt that with the Binet-Simon scale a child's mental age is a measure not only of the plane of intelligence with which he is congenitally endowed, not only of the plane of intelligence at which in the course of life and growth he has eventually arrived, it is also an index, largely if not mainly of the mass of scholastic information and skill which, in virtue of attendance more or less regular, by dint of instruction more or less effective, he has progressively accumulated in school." If this be true of children of the elementary schools, how much more will it be true of children in some smaller schools where a system of education is in practice which distinctly cultivates the powers of expression of the children, such, for example, as the system of the Parents' National Educational Union. To the children of such schools many of the tests of the scale are such as they are accustomed to practise in daily work, a condition which necessarily renders the tests valueless to them—a fact which is recognized by the author as a possible end-result of the common use of these tests in schools.

The last memorandum deals with the needs and uses of scholastic tests. For the measurement of school progress there is no scheme of tests, widely used and popularly recognized, claiming the same position and enjoying the same prestige as the Binet-Simon scale for the measurement of native intelligence. In collaboration with M. Vaney, Binet and Simon did attempt what they styled a "barometer of instruction"—a set of graded exercises in reading, spelling, and arithmetic, but the tests were compiled on a rougher plan, and in any case are not suitable for transplantation to other countries. Teachers are well fitted to make their own tests, but these are necessarily unrelated to the tests of other teachers. The difficulty is found especially in attempting to compare the scholastic attainments of children in widely different parts of a great city; what is only fair in one part may be considered excellent in another. There is no true comparison, and Mr. Burt has attempted to provide a series of graded tests, suitable for measuring as scientifically as possible the attainments of individual children in all the fundamental subjects of the elementary school curriculum. The scales are confessedly tentative, but are put before the inquiring teacher as a starting point for further research, and as an indication of lines of a principle likely to prove useful. Mr. Burt, indeed, recommends that every teacher should prepare his own tests after studying this test-sheet. The questions to be contained in the tests in actual use should be left to the investigators themselves, otherwise the tests may become stale and commonplace, and, like some of the Binet-Simon tests, so popularized as to be useless for their special ends.

These memorandums include a very valuable series of investigations which cannot fail to be of great value to educationalists and those engaged in school medical inspection. The London County Council is to be congratulated on their publication.