of mental disturbance already noted. In the course of dementia præcox, sudden fleeting episodes of mental confusion with agitation may arise, on account of which patients, at first tranquil and apathetic, are thrown into dangerous or fearful states, in which they break furniture, tear up clothing, and are given over to a lively emotion, shouting words or incoherent phrases, and refusing food. They then rapidly calm down, without knowing anything of their sudden agitation, or they say that their confusion was the result of a sudden fearful sight that they felt like a blow on the head, although they can record little or nothing of the occurrence.

Benigni's theory regarding mental cerebral claudication is that toxines enter the circulation suddenly, in greater quantities than usual, and are able to act directly or indirectly, through their effect on nerve cells, on the vessel walls, causing angio-spasm or paresis. Should the vessel walls be diseased, as they generally are, the claudicational phenomena are easier of production. HAMILTON C. MARR.

The Power of Comprehension and Observation in Dementia Præcox [*Auffassungs- und Merkfähigkeit bei Dementia Præcox*]. (*Psychol. Arbeiten, published by Prof. Emil Kraepelin, vol. v, Part VIII.*) *Busch, A.*

The tests described by Dr. Busch where made at Heidelberg in 1903. Reis had already discovered that the power of comprehension in the paralytic was much more impaired than that of the hebephrenic, who often had normal comprehension—a discovery that is not surprising in view of the fact that the clinical picture of hebephrenia shows the powers of comprehension and observation to be very slightly disturbed in comparison to the impairment of will-power. On account of the fact that this side of the psychical change differed in some degree from the clinical picture in the group of patients suffering from dementia præcox, it seemed interesting to make the tests again, and, if possible, more fully.

Reis used the Cron-Kraepelin rotating drum for his tests, but this instrument has the disadvantage—especially in the case of dementia præcox patients—that the patients, being left to themselves to read off the writing, after a time are inclined to become so indifferent that their efforts cease altogether. For this reason it was thought expedient to use Finzi's shooting plate in conjunction with the rotating drum, an arrangement which had these advantages: (1) It was impossible for the patient to lapse into a state of indifference, for after each passing of the plate he had to state (*a*) whether he had read anything, (*b*) what he had read. (2) The apparatus does not place such a strain on the patient as the rotating drum, which requires constant attention for six or seven minutes.

A detailed description of the instruments will be found in the works of Cron-Kraepelin and Finzi. In the tests with the shooting plate the opening was 1·9 cm. and the length of time the plates were visible was 22 seconds. The duration of visibility in Finzi's own tests—he worked entirely with normal and educated people—was 16·7 seconds.

The tests were made on nineteen patients diagnosed as dementia præcox cases, and on six healthy persons, attendants in the institution.

The first test in each case was with the shooting plate, nine large (Latin) letters of the alphabet being used. The next step was to make tests with the rotating drum with meaningless syllables, one- and two-syllabled words. Lastly, a few tests on the shooting plate with meaningless words were made.

The histories of all the patients are given, and tables showing the results of testing in each case.

The tests on healthy persons showed that the extent of comprehension and observation was dependent on education, *i.e.*, ability to read, of the subject, but irrespective of education, every case demonstrated that when a pause of ten seconds was given between the actual testing and the response there was a growing tendency to give the correct answers, but that after thirty seconds' interval errors began to get more frequent and correct answers fewer, the total readings being less. There were no signs of fatigue noticed—the tests were too short for this. On the last five days of testing, as a result of practice, four persons showed a total increase, as compared with the first five days, of 12·9 *per cent.* in the total number of readings, an increase of 22·1 *per cent.* in the correct readings, and a decrease of 16·9 *per cent.* in the incorrect.

Taking the averages, most of the patients showed an increase in faults and a lower percentage of correct readings than the healthy. The average of correct readings in patients was 50·14 *per cent.*, and in attendants 72·01 *per cent.* With a pause of ten seconds after the stimulus the correct readings fell to 43·30 *per cent.* in the patients, and rose to 70·40 *per cent.* in the attendants.

The rotating drum tests were made on three patients, and the results compared with those of experiments on healthy persons previously made under similar conditions by Cron-Kraepelin and Reis. The comparison showed that errors and omissions were increased in the cases tried, and that repeated mistakes, in proportion to the mistakes, were fewer. The results were similar in that there were more correct readings and fewer omissions, with, at the same time, an increase in errors when one-syllabled words were used for the tests than when meaningless syllables were employed, although the former contained more letters.

In testing for observation of single letters, the second and third letters were most frequently recognised, the fourth not so often, while the last was very badly reflected on the minds of the patients.

Tests with the shooting plate with meaningless syllables and one-syllabled words were made in three cases of patients only. There was a very large percentage of errors.

All the patients were willing to make the tests, and set to work earnestly. Four patients, in the tests for attention, gave a return of fewer errors, with at the same time fewer correct answers, than the healthy. Two of these patients were very well educated. But the largest group of patients was that whose readings were, with regard to accuracy, usually slightly below normal, and while the errors made were only in a few cases equal in number to those made by normal persons, in all other cases the number of mistakes was largely increased. This

does not show a simple abatement of the sharpness of comprehension in the patients, or a greater difficulty of the test for their lessened ability. The results we have from healthy persons are decidedly against this. In these experiments there was more difficulty in the test given to the unpractised attendants and nurses, and the result was a back-setting of the correct readings, a diminution of the absolute error return, and a marked diminution in the number of readings made. The patients, as a rule, made just as many, or even more readings than the healthy, and the decrease in correct readings was more than equalled by the increase in errors, so that clearly the largest number of misreadings arose from the inclination of the patients to repeat hurried and inaccurate impressions. The patients, as compared with the healthy, seemed less careful to differentiate the reliable from the uncertain observations, and to give a less exact account of the faultiness of their comprehension. Even those patients who showed least indifference were not able to give reliable answers. The extent of their attention was wider than normal—they accounted for more readings—but its exactness was less, *i.e.*, it was falsified and increased by self-assimilative additions. In three cases, when the tests were made with the shooting plate, for single letters, there was a medium return of correct answers, and a very large percentage of incorrect—even when the blank plate was rushed past, one patient gave answers as usual, evidently responding in a mechanical way, and from former experience. How far this automatical working of the brain influenced the other patients is difficult to say, but it does not seem to have played an important *rôle*, except in the three cases mentioned.

The impressions in the patients faded quickly, without gaining any strength, and at the same time new and false impressions showed themselves. At this stage the patients were not able to distinguish correct from false impressions.

The conclusion is reached that it is possible to classify all the disturbances thus found in the patients under the same headings as those found by clinical observation.

The lessened dexterity of the patients when at work is probably another expression of their diminished will-power.

The want of initiative on the part of the patients was shown by the very bad results obtained when the rotating drum was used.

In the tests for single letters, in the one- and two-syllabled words, the patients, unlike the healthy, seemed to have difficulty in grasping the large initial letter of the word. Their attention was drawn to the middle of the word, showing that they looked on the words as wholes, and made no attempt at spelling them. This, again, shows passive, assimilative reading, and indifferent attention. It has been suggested that as the spaces between the words were smaller than between the syllables, the patients could not apply their attention in the short time to the beginning of the next word, also showing a passive and slow apperception. With the shooting plate the first letter was always best recognised, whether printed with a large or with a small character.

It is thus seen that the diminution of sensitiveness to stimulation and the inactivity of the will-power, which are the principal symptoms in dementia præcox, can be traced back and found in the most elemental

efforts of the will, in those of the apperception. It can be taken for granted that the tendency to inaccuracy, *i.e.*, the lessened ability of the patients to differentiate sharply between objective impressions and subjective "memory pictures" which are connected with the above-mentioned impairment of the apperception, also injures the comprehension generally. Perhaps the mistaking of identity, etc., and the errors of memory found in dementia præcox patients are a clinical expression of this inability. Possibly also we have here a good foundation for hallucinatory symptoms, and lastly, it is not improbable that this deficiency is also the cause of the "matter of course" way in which the patients take their hallucinations and delusions for actual facts.

Concluding remarks.—(1) The extent of comprehension and observation is dependent on the education (*i.e.*, the amount of practice in reading) of the subject.

(2) The number of correct readings is, in dementia præcox, on the whole, lessened, and the number of faults, on the contrary, often very considerably increased.

(3) In the tests for attention, the patients did not show a normal rising in clearness of the impression after a pause of a few seconds, but the power of attention sank under that of comprehension from the beginning, with, at the same time, an increase in errors.

(4) The disturbances of comprehension and observation in dementia præcox can be traced back to a dulness of attention (more passive apperception) and the occurrence of automatical and sterotyped replies.

(5) The ability to differentiate reproductive elements of the consciousness from outer impressions is lessened in dementia præcox on account of the reduced power of attention.

(6) The attention of the patients is not only less strained, but is slower.

(7) The disturbances are in general stronger in the acute outbursts of illness, which are accompanied by lively symptoms, than in the chronic and lapsed cases—therefore stronger in katatonia than in hebephrenia.

(8) The dexterity of the patients is decreased.

A note is added to this article stating that, as several years have passed since the tests were made, it has been possible to watch the progress of the cases. The diagnosis of dementia præcox proved to be correct in every case, except in one, a patient who, it was afterwards discovered, was suffering from hysteria combined with mild imbecility. It is evident from this case that the phenomena discovered are not peculiar to dementia præcox. HAMILTON C. MARR.

Two Cases of Landry's Paralysis [*Zwei Falle von Landry'scher Paralyse*]. (*Neur. Cbl.*, 1908, *Nr.* 21.) *Sarbo, Arthur V.*

The question as to whether Landry's paralysis is an affection of the grey anterior cornu of the spinal cord or a disease of the peripheral nerves has not yet been settled. The two cases cited point, from their clinical pictures, to a disease of the anterior motor nerve-cells of the spinal cord, the medulla oblongata, and the pons.

The first case is rare in that it showed a progressive motor paralysis. A boy, æt. 12, who five years previously had suffered from middle-ear disease, and since then had had occasional discharge from the right ear,