

almost hopeless. The tendency of this combination is progressively downward.  
*Traumatic Idiocy.*—In the history given by mothers and other members of the family, trauma is constantly advanced as a cause of mental defect. Clinically, how-

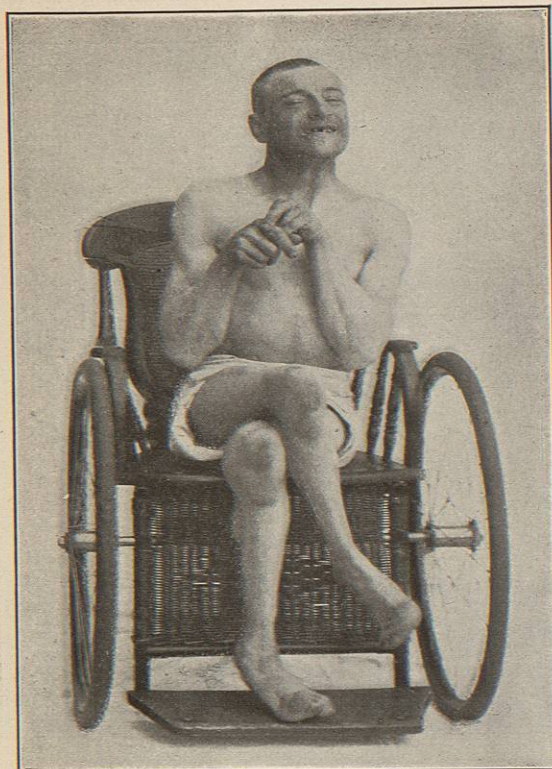


FIG. 2848.—Idiocy with Spastic Diplegia; showing Adduction of Muscles of the Thigh, Talipes, General Muscular Incoordination, Choreiform Movements, etc. Patient aged twenty-six years. (Fernald.)

ever, traumatic idiocy has no distinguishing features, and in view of the fact that few children grow up without falls and bruises, one has to be extremely conservative about accepting injury as a cause.

*Sensorial Idiocy.*—This class includes the mental defects observed in children who have lost one or more of the special senses, especially sight or hearing. There are certain remarkable instances in which, after loss of sight and hearing with its attendant mutism, the patients have developed into persons of excellent intelligence. They naturally never attained intellectual conceptions which these senses alone can furnish. But otherwise they have been intellectually normal. Such results are, however, unusual. As a general rule, children who are shut off from these avenues of education do not attain full intellectual development.

*Amaurotic Family Idiocy.*—This is a very rare condition, occurring chiefly in Hebrew children between the second and eighth months of life. There is degeneration throughout the whole cerebro-spinal nervous system, of which the clinical evidences are paralysis, impairment of sight or blindness, and mental defect. The ophthalmoscope shows characteristic changes in the neighborhood of the macula, originally described as "a white speck more or less circular, in the centre of which is a brown point, offering a sharp contrast to the white." Optic

atrophy occurs eventually. The children rarely survive the second year.

*Backward Children.*—In addition to the various classes of defective mental development which have now been described, a word must be said in regard to children who are not idiotic, who in fact can hardly be called feeble-minded, yet who are backward. All such children merit the most painstaking psychological and physical examination. In many cases the principal defect seems to be a failure of attention, without there being any demonstrable physical cause. We must then assume that somewhere in the course of personal or ancestral development checks were given to progress, and that the child is intellectually below par because he lacks functionally capable ganglion cells. Under such circumstances the most that treatment can do is to enhance the function of existing cells; it cannot, of course, furnish new ones. But in other cases brain cells may be normal in structure and potentially normal in function, and the reason why they fail to give evidence of normal action is to be found in temporary conditions, which are susceptible of removal with the cure of the patient. Among such temporary conditions are visual disturbances, especially errors in refraction, disturbances of hearing, general diseases and mal-



FIG. 2849.—Spastic Paraplegia, Idiocy, and Defective Development of Cranium. Patient aged four years; height, thirty-two inches; weight, sixteen pounds; circumference of cranium, sixteen and one-sixth inches. (Fernald.)

nutrition, and possibly obstructive disease of the nasopharynx. Interferences with sight and hearing are the most important of these, owing to the fact that they are so often overlooked. Many children are catalogued as backward, whereas the whole trouble depends on their being unable to see or hear well. Oftentimes defective



FIG. 1.—Group of Cases of Idiocy. (Fernald.)



FIG. 2.—Group of Feeble-Minded Boys of the Higher Grade, Capable of some Scholastic Development. Cases of this type may learn to read, write, etc. (Fernald.)



vision is discovered by it being noticed that the child is slow in learning to read, or that it is a bad speller. Partial deafness closely simulates failure of attention. Whether interference with the breathing, dependent upon some naso-pharyngeal disease, causes the appearance of feeble-mindedness, or not, seems to me doubtful. It is so maintained, however, by some authorities. General diseases require little comment. But stress must be laid on the condition of over-fatigue, into which many children are pushed by the excessive work they are forced to do. It is by no means a rare experience with me for mothers to bring children, between the ages of eight and twelve or fourteen, to be examined because the school teacher has reported slow progress and backwardness. Examination shows the children to be of good intelligence, and not very much under a normal standard of health. But there is a general appearance about them of fatigue; in sitting, they do not hold themselves erect; in standing, they attempt to help support the weight of the body by leaning against the wall or by laying the hands on the desk or table. Inquiry as to daily routine shows that the children are doing very much more work than they should, and that their hours of unregulated and untrammelled play are too short. The following is the routine which a child of fourteen was expected to follow in a large girl's school in New York. Rising at 6:15 A.M., she was kept constantly busy with school duties until 10:30. A recess of fifteen minutes was followed by more recitations and study till the half-hour dinner at 12. Play was allowed immediately after dinner, for an hour, then followed practising, sewing, recitations, study, religious exercises until 6:30, with a recess of only fifteen minutes. After supper the only free time was from 7:30 to 8:15 when bedtime came. Thus, of the whole twenty-four hours, only one, and that one directly after the heartiest meal, was given over to uninterrupted play. Is it remarkable, under such circumstances, that a child gives irrelevant answers to questions, that he cannot remember well, that his lessons are imperfectly learned, that he is irritable and fretful?

**PROGNOSIS.**—The prognosis of idiocy concerns life and intellectual prospects. In a large number of the congenital or early developed cases death occurs in the first few months or years of life. These patients are particularly subject to such diseases as diarrhoea and pneumonia. From all points of view the defective and feeble-minded are poorly equipped for the struggle for existence and die prematurely. Most idiots who survive infancy, die before twenty, few live to be over forty. Occasionally, however, cases are met with that live to old age. The prognosis as to life must, with few exceptions, be made to depend upon the degree of malnutrition which may be present; generally the latter is directly proportionate to the degree of mental defect.

The prognosis as regards the intellectual condition has reference solely to the question of improvement. There is no such thing as a cure in arrested mental development. If the child is not teachable, even improvement is out of the question, except possibly in cretinism. If, on the other hand, the child can be taught, much can be attained by modern pedagogical methods. The statistics contained in the twenty-seventh annual report of the Royal Albert Asylum at Lancaster, England, showed, with regard to the after-career of pupils discharged on completion of their seven years' training, that ten per cent. were or had been earning wages; that five per cent. were remuneratively employed at home; and that three and one-half per cent. additional were capable of earning wages. Such favorable results can be expected in a small proportion of cases only. In the others we have to be satisfied if the patient learns to talk, to acquire a knowledge of some simple kind of handiwork and habits of cleanliness, to show respect for authority, and to exercise some measure of self-restraint. The prognosis varies also with the degree of original defect and with the age at which training is begun. The latter should not be delayed beyond the third or fourth year, and should be begun earlier if possible.

**TREATMENT.**—The treatment of idiocy is medical, surgical, and pedagogical.

The medical treatment is not different from the medical treatment of children generally. The physician is, however, more largely thrown on his own resources. Statements from the patients are either not forthcoming or are unreliable; and the absence or diminution of the pain sense cuts out the diagnostic symptom of pain.

Surgical procedures, directed toward relief of the mental state, are rarely if ever justifiable. Tapping the lateral ventricles in hydrocephalus, and trephining in microcephalics, on the theory of premature ossification of the skull, are tried from time to time. But it is a matter of considerable doubt if these procedures do any real good.

The object of pedagogical measures is to increase the acuity of the senses, to teach coordinated use of the muscles, to instil good habits and eradicate bad ones, to teach the use of language, to inculcate ideas of form, number, length, weight, surface solids, and, finally, to apply these results to still higher education. The sense of touch is educated by surfaces of varying degrees of smoothness, by soft and hard objects, by stringing beads, by buttoning specially made buttons, etc. The eye is educated by yarns of different colors, by blocks, cubes and balls of different colors and sizes, by various mechanical games, etc. Gongs, bells, music, singing, etc., help to educate the ear. By the improvement in the acuity of these senses, there naturally results an increase in attention and a better coordination of movement. Walking is taught by increasing the strength of the legs by massage and passive movements, and then by various mechanical devices. By analogous means, the hands are accustomed to coordinated movements. The key to teaching habits of cleanliness of the person, etc., is to be found in the watchfulness and assiduity of the nurse, and, above all, in the absolute regularity with which the various procedures are carried out. Certain bad habits must be grappled with. Constant watchfulness is the only cure for masturbation, which is a very difficult symptom to overcome. It is sometimes necessary to tie the patients at night. Sucking the fingers and biting the nails are cured by the application of a solution of aloes or other disagreeable substance.

Speech is taught by the oral method, or by constant and regular exercise in speaking correctly. Manual training and industrial training follow naturally after simpler things have been learned. (See Plate C.)

Further into the details of the pedagogical methods currently used in idiocy it is impossible to enter here. It is the province of the psychologist and educator, rather than of the physician. But in closing it may be said that the earlier such treatment is begun the better, and that better results are generally obtained in good institutions, either public or private, than at home.

The writer desires to express his obligations for the illustrations which accompany this article to Dr. Walter E. Fernald, Superintendent of the Massachusetts School for Feeble-minded Children. Pearce Bailey.

**INSECT FLOWERS.**—*Pyrethri Flores.* *Insect Powder.* The half-expanded flower heads of *Pyrethrum cinerariaefolium* Trev. (White or Dalmatian *Insect Powder*) and of *Chrysanthemum roseum* Weber and *C. carneum* Weber, both called *C. coccineum* Willd. in the *Index Kewensis*, (Blue, Caucasian or Persian *Insect Powder*), all of the family *Compositae*. The Dalmatian species is greatly superior. All are native and very extensively cultivated perennial herbs of western Asia. The heads bear a close resemblance to those of the common daisy, the rays being white in the Dalmatian, blue in the Persian. Insect flowers reach the hands of the consumers entirely in the form of the yellowish or gray powders, and it is then extremely difficult to determine their purity or quality, which varies most widely. The quality is claimed to be best when the heads are just beginning to expand, but their collection at this time is not economical. It decreases progressively with their maturity, but the use of