



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

Columbia University

Teachers College

Educational Reprints





LELAND STANFORD JUNIOR UNIVERSITY



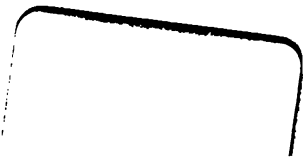
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100



100
7006



LELAND STANFORD JUNIOR UNIVERSITY

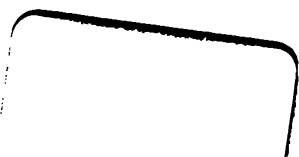


100

7516



LELAND STANFORD JUNIOR UNIVERSITY





Columbia University

Teachers College

Educational Reprints



LIBRARY
PLANNED AND DEVELOPED BY
UNIVERSITY

Published by
Teachers College, Columbia University
New York
1907

УРАДУ
СОБН. ОРГАНИЗАЦИОН
УПРАВЛЮ

Idiocy: And Its Treatment

BY THE

Physiological Method

BY

EDWARD SEGUIN, M. D.



PRESS OF
BRANDOW PRINTING COMPANY
ALBANY, N. Y.

In reprinting this volume, our purpose is only to make available for all students of the education of mental defectives a book of very great historical importance, not to guide such students in estimating the truth or present worth of the body of ideas which it presents. Hence there are no notes or editorial comments, and the original text has been left unaltered except in the case of a few obviously unintentional misprints. The descriptions of cases appended to the original are here omitted.

Committee on Publications,
TEACHERS' COLLEGE, COLUMBIA UNIVERSITY,

June, 1907.

119418

CONTENTS

	PAGE.
Preface.....	5
Bibliography.....	7
Introduction.....	9
1st. Origin of the Methodical Treatment of Idiots.....	12
2d. History of the Physiological Method of Education.....	18
PART I—IDIOCY	
Definition.....	29
Cause.....	29
Circumstances in which it is produced.....	30
Endemic Idiocy.....	32
Idiocy, simple, of Central or Peripheral Origin.....	34
Pathology.....	34
Appearance in Infancy.....	39
✓Motor Symptoms.....	41
✓Sensorial Symptoms.....	43
Deficiencies of Speech and Intellect.....	46
Moral Sense.....	47
Comparison of Idiots with their Congeners.....	48
The Protection they need.....	53
The Anthropological Discoveries made and expected from the Study of Idiocy.....	55
PART II—PHYSIOLOGICAL EDUCATION	
Method.....	57
Prevention of Idiocy.....	59
Treatment in Infancy.....	60
General Precepts.....	62
✓Where Education begins.....	62
✓System defined.....	67
Training of Movement.....	68
Two Immobilities.....	71
Locomotion.....	74
✓Prehension.....	77
✓Training of the Hand.....	81
Correction of Special Anomalies.....	83
✓A few Apparatuses of Special Gymnastics.....	84
Imitation, Personal and Objective.....	89
✓Education of the Senses.....	93
Teaching the Speech.....	106
Teaching the Elementary Notions.....	115

	PAGE.
Teaching Drawing, Writing, and Reading.....	120
Passive and Active, Individual and Group Teaching.....	125
Reading-matter.....	129
Object-lessons.....	131
Qualification, Actions, Relations, Numbers.....	132
Memory and Imagination.....	135
Résumé of the Method.....	139

PART III—MORAL TREATMENT

History.....	148
Definition.....	149
Analysis.....	150
Authority and its Modes of Expression.....	152
Command, Immediate, Mediate, Contingent, etc.....	157
Moralization of Food, Labor, etc.....	164
Pleasures, Pains, and Affection.....	167
Socializing Idiots.....	170
Foundation of the Moral Treatment.....	170

PART IV—INSTITUTION

Name.....	172
Buildings and Internal Arrangements.....	174
Out-door Resorts.....	182
Intellectual Institution.....	183
Selection of the Pupils.....	183
Their Number and Grouping.....	185
Officers, Attendants, Matrons.....	188
Teachers, Gymnasts, etc.....	191
Superintendent.....	193
What Society expects in return for the Foundation of the Institution for Idiotic Children.....	201

PREFACE

Twenty years have passed away since the publication of any treatise on the treatment of idiots.* This period has been appropriately filled by the practical labor of founding schools and endowing public institutions for these children. The preceding period had been occupied by the framing of the physiological method of education; and the next period will be devoted to new studies on the subject.

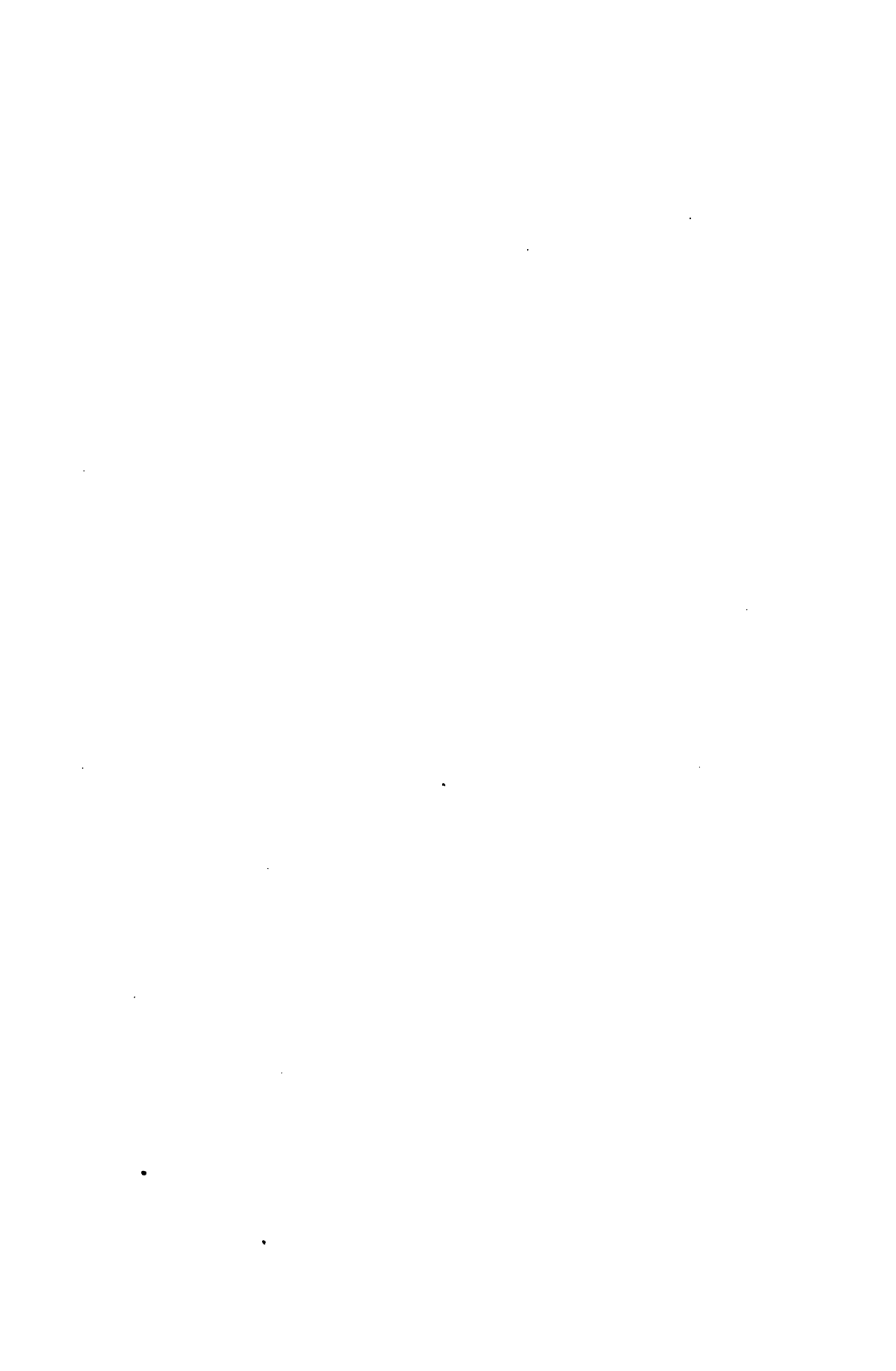
This present time seems therefore particularly favorable for the writing of a book embodying: 1st, Our present knowledge on idiocy; 2d, The method of treating idiots; 3d, The practice of the same; and 4th, An outline of the direction to be given to the scientific efforts of the friends of idiots, and of the apostles of universal education.

Deprived of language by voluntary change of nationality, and engaged in the fulfilment of private duties, we did not take our share in the treatment of idiots in this Republic; but we were never distant from the subject and we reëntered it as soon as circumstances permitted.

We accepted the hospitalities of the New York Institution as one of our means of study. The superintendents of all the schools for idiots, and one of their trustees, tendered their assistance in the shape of liberal subscriptions; William Wood undertook the publishing, though knowing that it could not be of pecuniary advantage; and Dr. E. C. Seguin revised the work with the double object in view of saving its language from our Gallicisms and from common-place corrections; cheerless task for any one but for a tender and dutiful son, in doing which, he has fathered the last-born of the mind of his father. Unhappily, towards the close of the work, it became necessary, on account of his health, to leave for Europe, so that the defects left therein will be ours.

NEW YORK, *May*, 1866.

* While these pages are passing through the press we are apprised of the publication of the treatises of Drs. Down, Duncan, and Millard, to which we are happy to give a place in our bibliographic list.



BIBLIOGRAPHY

1. Note Historique sur le Sauvage de L'Aveyron. Prof. Bonaterre, Paris: 1799.
2. Discussions on the same subject between Pinel and Itard, before the French Academy of Sciences. See Memoires: 1799.
3. De L'Education d'un Homme Sauvage. Itard. Paris: 1801.
4. Rapport sur le Sauvage de L'Aveyron. Itard. Paris: 1807.
5. Observations pour servir à l'histoire de l'Idiotie. Dans Les Maladies Mentales, Esquirol. Paris: 1828.
6. Résumé de ce que nous avons fait pendant quatorze mois. Esquirol et Seguin. Paris: 1839.
7. Conseils à M. O., sur L'Education de son enfant idiot. E. Seguin. Paris: 1839.
8. Theorie et Pratique de L'Education des Idiots (Leçons aux jeunes idiots de L'Hospice des Incurables), première partie. E. Seguin: 1841.
9. Ditto. Seconde partie. Paris: 1842.
10. Hygiène et Education (extrait des Annales d'Hygiène et de Médecine légale). E. Seguin. Paris: 1843.
11. De L'Idiotie chez les Enfants. Felix Voisin. Paris: 1843.
12. Essai sur L'Idiotie. Belhomme. Paris: 1843.
13. Gottre and Cretinism. Dr. Niepce. Paris: 1845.
14. Images Graduées à l'usage des Enfants Arriérés et Idiots. E. Seguin. Paris: 1846.
15. Traitement Moral, Hygiène et Education des Idiots, etc. E. Seguin. Paris: 1846.
16. Remarks, Theoretical and Practical, on the Education of Idiots and Children of Weak Intellect. W. R. Scott, Ph.D. London: 1847.
17. J. R. Pereire, Analyse Raisonnée de sa Méthode. E. Seguin. Paris: 1847.
18. Idiocy, by Forbes Winslow. London: 1848.
19. Cretinism and its Treatment. Dr. L. Guggenbühl. Berne: 1848.
20. Cause and Prevention of Idiocy. Dr. S. G. Howe. Boston, Mass.: 1848.
21. Report of the Commission created by the King of Sardinia for the Study of Cretinism. Turin: 1850.
22. Researches on Idiocy and Cretinism in Norway. Dr. Stalst. Christiania: 1851.
23. Statistic Studies on Idiocy. Hubertz. Copenhagen: 1851.
24. Die Heilung und Verhütung des Cretinismus und Ihre Neuesten Fortschritte. Dr. J. Guggenbühl. Bern un St. Gallen: 1835.
25. Teaching the Idiot. Rev. Edwin Sidney, A. M. London: 1854.

26. On the Possibility of Educating Idiot Children, etc. Dr. Erchricht. Copenhagen: 1854.
27. Cretinism and Idiocy. Dr. Blackie. Edinburgh: 1855.
28. Idiot Training. Rev. Edwin Sidney. London: 1855.
29. Idiots and the Efforts for their Improvement. Dr. L. P. Brockett. Hartford, Conn.: 1856.
30. Report of Commissioners on Idiocy in Connecticut. Dorchester, Knight & Brockett: 1856.
31. Essay on Idiots' Instruction. Dr. Freedman Kern. Gohlis: 1857.
32. Handbook on Idiocy. James Abbot. London: 1857.
33. Die gegenwärtige Lage der Cretinen, Blödfinnigen und Idioten in den Christlichen Ländern. Julius Desselhoff. Bonn: 1857.
34. The Mind Unveiled. Dr. J. N. Kerlin. Phila.: 1858.
35. Two Visits to Earlwood Asylum for Idiots. Rev. Edwin Sidney, A.M. London, 1859, 1861.
36. The Method of Drill, the Gymnastic Exercises, and the Manner of Teaching Speaking used at Essex Hall, Colchester, for Idiots, Simpletons, and Feeble-minded Children. E. Martin Duncan, M.B. (Lond.). London: 1861.
37. Some Suggestions on the Principles and Methods of Elementary Instruction. Dr. H. B. Wilbur, Superintendent of the New York State Asylum for Idiots. Albany, N. Y.: 1862.
38. Essay on Idiocy. Dr. Coldstream. Edinburgh: 1862.
39. The Idiot and His Helpers. W. Millard, Essex Hall, Colchester: 1864.
40. Lunacy and Law, together with Hints on the Treatment of Idiots. F. E. D. Byrne, L.R.C.P., and M.R.C.S. London: 1864.
41. A Fête-day at Earlswood Asylum for Idiots, June, 1864. Rev. Edwin Sidney. London: 1864.
42. The Training of Idiotic and Feeble-minded Children. Cheyne Brady, Esq., M.R.I.H. Dublin: 1864.
43. Idiocy, its Diagnosis and Treatment by the Physiological Method, etc. E. Seguin. Albany, N. Y.: 1864.
44. Idiot Asylums. In *Edinburgh Review*, No. CCXLIX. July: 1865.
45. A Treatise on Idiocy and its Cognate Affections. J. Langdon H. Down, M.D., Lond., Physician to the Asylum for Idiots. (In press.) London.
46. A Manual for the Classification, Training, and Education of the Feeble-minded, Imbecile, and Idiotic. By P. Martin Duncan, M.B., Lond., F.G.S., F.A.S.L., Honorary Consulting Surgeon to the Eastern Counties Asylum for Idiots and Imbeciles; and William Millard, Superintendent of the Eastern Counties Asylum for Idiots and Imbeciles.

There have been, no doubt, many other valuable publications on the subject; for instance, the Essays of Dr. J. Conolly and Dr. Twining, but we have not been able to obtain them. To these must be added the Annual and other Reports of the various Institutions for Idiots in this country and abroad.

IDIOCY, AND ITS TREATMENT

INTRODUCTION

Idiots have been educated in all times by the devotion of kind-hearted and intelligent persons and with the best means they could borrow from ordinary schools; until the progress of physiology opened the possibility of the adaptation of its principles to the general training of children. But other elements were mature. The right of all to education was acknowledged if not yet fulfilled with the imperfect means at command; the deaf and the blind were already instructed by special methods; and several children, marked by nature, accident, or crime, with the characters of idiocy, had been subjected to physiological and psychological experiments. Can idiots be educated, treated, improved, cured? To put the question was to solve it.

There is a sort of mysterious upheaval of mankind in the way new things spring up, which commands our awe. At a given hour, anything wanted by the race makes its appearance simultaneously from so many quarters, that the title of a single individual to discovery is always contested, and seems clearly to belong to God manifested through man. The origin of the methodical treatment of idiots, though apparently of secondary importance, is nevertheless one of these necessary events, coming when needed for the co-ordination of progress. Nothing can give a better instance of the simultaneity of feeling this new idea encountered, than the readiness with which all nations encouraged the formation of schools for idiots, and the unconcerted unanimity of language elicited at the foundation of these establishments by minds separated otherwise by vast intellectual distances.

It was our fortune to be a guest at one of these solemnities, where individuals certainly spoke more the language of mankind than their own; manifesting clearly wherefrom the spirit of the occasion came. It was at the ceremony of the laying of the corner-stone of the first school built expressly for

idiots in this country at Syracuse, New York, September 8, 1854.

The Rev. Samuel J. May began in these terms: "Twenty-five years ago, or more, in the early days of my ministry, I encountered, as every man who thinks at all must sooner or later encounter, the great problem of the existence of evil—the question, how the Good God, the Heavenly Father, could permit his children of earth to be so tempted, tried, and afflicted as they are. I was unable to avoid this perplexing subject; so I met it as best I could, in full faith that the wisdom and goodness of God will be justified in all his works, and in all his ways, whenever they shall be fully understood.

"I endeavored to lead my audience to see what, in almost every direction, was very apparent to myself, that evil is a means to some higher good; never an end; never permitted for its own sake, certainly not for the sake of vengeance.

"I was able easily to trace out the good effects of many evils; to show how they had stimulated mankind to exertion and contrivance, physical and mental; to tell of the discoveries, inventions, and improvements that were the consequences. In particular, I dwelt upon the sad privations those individuals are subjected to who were born deaf or blind. The institution of the Asylum for the Deaf and Dumb, at Hartford, was then of recent date, and a school for the blind was said to have been opened in Paris. These institutions were then of great interest to the philanthropist; and I found no difficulty in showing that the philosophy of mind, and the science and art of education in general, had been much improved by the earnest and successful endeavors which benevolent persons had made to open communications with the minds and hearts of persons deprived of one or more of the most important senses.

"But there was idiocy—idiocy so appalling in its appearance, so hopeless in its nature; what could be the use of such an evil? It were not enough to point to it as a consequence of the violation of some of the essential laws of generation. If that were all, its end would be punishment. I ventured, therefore, to declare with an emphasis enhanced, somewhat, perhaps, by a lurking distrust of the prediction,

that the time would come when access would be found to the idiotic brain; the light of intelligence admitted into its dark chambers, and the whole race be benefited by some new discovery on the nature of mind. It seems to some of my hearers, more than to myself, a daring conjecture.

"Two or three years afterwards I read a brief announcement that in Paris they had succeeded in educating idiots. I flew to her who would be most likely to sympathize in my joy, shouting, 'Wife, my prophecy is fulfilled! Idiots have been educated!' . . . "

When men are gathered together for a common purpose, their object being common, their minds become blended; they cease to think as many; the same idea flows from all brains. So was it at this ceremony. Dr. H. B. Wilbur, Gov. W. Hunt, the Hons. E. W. Leavenworth, C. H. Morgan, James H. Titus, the steadfast friends of the new institution, spoke in the same strain. Letters from involuntary absentees, Gov. J. C. Spencer, Simeon Draper, William H. Seward, breathed the same spirit. Dr. S. G. Howe's happy words concluded: "The institution whose foundation-stone is to be laid, will be like a last link in a chain—it will complete the circle of the State's charities, which will then embrace every class whose infirmities call for public aid. It has long included the deaf mutes, the blind and the insane and it is now to include the idiots—a class far, far more deplorably afflicted than either of the others.

"The ceremony will be fleeting and soon forgotten; the building itself will in time decay, but the institution will last while the State lasts; for when the people once recognize the claim of any class of unfortunates, there is no fear of their ever repudiating the debt of charity. The bonds lie deep in the heart of humanity as the foundation-stone you now lay lies deep in the bosom of the earth."

Even we, though a stranger, unable to appreciate the elevated tone of these aspirations, were rendered capable of expressing cognate feelings by the contagious influence of the engrossing topic. We said, "God has scattered among us, rare as the possessors of talent or genius, the idiot, the blind, the deaf mute, in order to bind the talented to the incapable, the rich to the needy, all men to each other, by

a tie of indissoluble solidarity. The old bonds are dissolving; man is already unwilling to contribute money or palaces for the support of indolent classes; but he is every day more ready to build palaces and give annuities for the indigent or infirm, the chosen friends of Jesus Christ. To see that stone, token of a new alliance between humanity and a class hitherto neglected, is the greatest joy of my life; for I, too, have labored for the poor idiot. . . . ”

These were a few of the transient expressions of the lasting feeling evinced at that memorable meeting. Once awakened in our bosoms, these feelings live for ever, and our actions are only their translation in deeds and monuments.

To render these feelings into facts, one nation after another has acknowledged its duty towards the idiot. In Switzerland, Dr. J. Guggenbühl began to study cretinism in 1839, and opened his school on the Abendberg in 1842, simultaneously with that of M. Saegert, at Berlin; both, it is said, without having any knowledge of our practice, or of our four successive pamphlets on the treatment and education of idiots, already published and exhausted. In 1846, Dr. Kern established a school at Leipsig; and the writings of Drs. A. Reed, Twining and J. Conolly gave birth to the first English institution at Bath. In 1848, Sir S. M. Peto devoted his own mansion, Essex Hall, Colchester, to the same destination. Scotland opened her first institution in 1852; and in June, 1853, was laid by Prince Albert, the corner-stone of the school of Earlswood, Surrey. Nearly all the nations of Europe followed these examples.

As early as 1842-3, Horace Mann and George Sumner had become familiar with our personal labors at Bicêtre, on which they wrote approvingly, sending over the seeds which soon rose from American soil. Dr. S. B. Woodward, Dr. Backus, of Rochester, New York, Judge Byington, Dr. S. G. Howe, Dr. E. Jarvis, and Dr. H. B. Wilbur, all of Massachusetts, were the first to move the public opinion of the Legislatures of their respective States. Indeed, Dr. Backus went so far as to report a bill to the Senate, at Albany, on the 13th of January, 1846, for the purchase of a site, and the erection of suitable buildings, for an asylum for idiots. This bill

passed the Senate, and was at first concurred in by the Assembly, but subsequently rejected on political grounds. In 1847 it met with a similar fate. Massachusetts, a few days behind New York at the start, succeeded sooner. The 22d of January, 1846, the Hon. Mr. Byington offered a resolution to the Legislature, for the appointment of a commission to investigate the condition of idiots in that State. The resolution passed the House; Dr. S. G. Howe, Judge Byington, and G. Kimball were appointed Commissioners. Their report was favorable to the formation of an experimental school for idiots, which was opened in October of the same year, and remains in its permanent organization under the able supervision of Dr. Howe.

But private enterprise moves faster than political bodies. Dr. H. B. Wilbur had already opened in July, at Barre, Massachusetts, the private institution which he left only at the call of the State of New York, and which Dr. George Brown has since so successfully conducted.

In 1851, the State of New York established an experimental school at Albany, for which the services of Dr. Wilbur were secured. The result of this experiment, purposely carried on under the eyes of the Legislature, was so satisfactory that a permanent State institution was erected in 1854.

In 1852, a private school had been founded in Germantown by Mr. J. B. Richards, which soon became the "Pennsylvania Training School for Idiots," at Media. The States of Connecticut and Ohio opened their institutions, respectively, in 1855 and 1857; Kentucky in 1860; and Illinois in 1865. Thus the United States has eight of these schools, in which nearly one thousand children are constantly in training. And this is only a beginning. All the Western and Southern States will soon possess similar establishments; and the city of New York, with its immense suburbs, cannot much longer send its idiots to the northern climate of Syracuse, depriving them of the warmth of the sea-shore, and of the visits of their friends. But more, New York city must have its institution for idiots, because it contains the mature talents and growing capacities in all the branches of human inquiry, whose con-

course must be insured to perfect the method of treatment of these children, and to deduce therefrom the important discoveries justly expected in anthropology.

If we turn our attention from these monuments of philanthropy to the filiation of the abstract idea realized by their erection, we see a spectacle more imposing still. That idea of finding modes of training, natural and yet powerful enough to bring into physiological activity impaired functions, and even atrophied organisms, did not come directly into the human mind. Like nearly all discoveries, it came by side-views of the problem, till a man looking at it in full face solved it by a mighty effort.

Thus the institutions for deaf mutes of Paris, Gröningen, Bordeaux, Hartford (Conn.), etc., have been cumbered from their beginning with applications for the admission of idiots, and have kept the record of the improvement of some of them, educated side by side with the deaf, by the ordinary process of teaching; trials dear to charity, like those of private individuals, but deprived of philosophical import. On the other hand, how often children, rendered artificially idiotic or imbecile by ill-treatment and isolation in many forms, have excited the pity of their age, and thereby were made recipients of the care of the most philosophical minds. Everybody will discriminate between these two antecedents; the former doing good to individuals, the latter preparing the way for the discovery.

The record of these latter children is scant as well as imperfect, extending to a period in which scientific observation was nearly unknown. We owe to the great Linnæus a list of ten of these phenomena which he, curiously enough, considered as forming a variety in the genus *Homo*. We are indebted to Bonaterre, Professor of Natural History in the Central School of the Department of Aveyron, France, for his quotation of it, for curious researches upon each one of these ten savages, and for his own notice of the eleventh, "The Savage of the Aveyron." We transcribe from our own copy of that extremely rare pamphlet.

1st. *Juvenis Lupinus Hessensis*. 1544. (A young man found in Hesse among wolves.)

2d. *Juvenis Ursinus Lithuanus*. 1661. (A young man found among bears in Lithuania.)

3d. *Juvenis Ovinus Hibernus*. Tulp. Obs. IV. (A young man found among wild sheep in Ireland.)

4th. *Juvenis Bovinus Bambergensis*. Camerar. (A young man found among herds of oxen near Bamberg.)

5th. *Juvenis Hannoverianus*. 1724. (A young man found in Hanover.)

6th. *Lueri Pyrenaïci*. 1719. (Two boys found in the Pyrenees.)

7th. *Puella Transisalana*. 1717. (A girl found in the Dutch Province of Over-Yssel.)

8th. *Puella Campanica*. 1731. (A girl found in Champagne and since named Mlle. Leblanc.)

9th. *Johannes Leodisensis*. Boerhaave. (John of Liège.)

10th. *Puella Karpfensis*. 1767. (The girl of Karpfen.)

11th. *Juvenis Averionensis*. Anno Reipublicæ Gallicæ octavo. (The savage of the Aveyron, in the year eighth of the French Republic.)

It would be curious, but unprofitable, to follow the scanty traces of method and education left in the legends concerning the ten first cases. "Such was," says Itard, "in those remote times the defective march of studies, the mania of explanation, the uncertainty of hypothesis, the exclusiveness of abstract thinking, that observation was set at naught, and these precious facts were lost for the natural history of man." But the rooted faith in which Itard himself was an adept, that if a true savage—meaning a savage, savage even to savage tribes—could be found, his education would evidence the natural springs of the human mind, obliterated in us by artificial culture; that faith, which lighted before the psychologist the same *Ignis-Fatuus* that the philosopher's stone raised before the alchemist, gives a sure guarantee that none of the means those times could afford were spared to develop the faculties long dormant in these unfortunates, under the cover of animal instinct and habit. But we have to come to the eleventh case, that of the Savage of the Aveyron, to emerge from fiction into history; there we begin to feel that we are on scientific ground. The first part of his biography,

written previously to his education by the man of clear and simple talent already named, Prof. Bonaterre, and the second and third parts by his inimitable teacher, constitute the most complete record of any such case.

Prof. Bonaterre represents his protégé as unused to our food, and selecting his aliments by the smell, like the savages of Ireland, Hanover, and Liège; lying flat on the ground, and immersing his chin in the water to drink, as did the girl of Chalons in Champagne; and like her tearing all sorts of garments and trying constantly to escape; walking often on all fours, like the boys of Ireland, Hesse, and Bamberg; fighting with his teeth, like the savages of Lithuania and Bamberg; giving few marks of intelligence, like the Lithuanian child; having no articulate language, and even appearing devoid of the natural faculty of speech, like the savages of Ireland, Lithuania, and Hanover; kind, complaisant, and pleased at receiving caresses, like the girl of Over-Yssel. The Professor also thought that,* “a phenomenon like this would furnish to philosophy and natural history important notions on the original constitution of man, and on the development of his primitive faculties; *provided that the state of imbecility we have noticed in this child does not offer an obstacle to his instruction.*”

With this remark, Bonaterre left the boy in the hands of “that philosophical institutor, who has accomplished so many prodigies in this class of teaching; and it is to be expected that the child just confided to his care, may sometime become the emulator of Massieu, Fontaine, and Mathieu” (noted deaf mutes taught in the school of Paris).

This institutor, Sicard, had succeeded the Abbé De L'Épée, and Bonaterre thought him the man to perform upon this savage the miracle dreamed of by De Condillac. But he was mistaken; Sicard soon tired of the uncouth being who was throwing away his clothes, and trying to escape even by the windows; and left him to wander neglected in the halls of the school for deaf mutes. But the child had been seen by all Paris. If the crowd of visitors found him an object of disgust, he continued to excite among thinkers a

* Bonaterre; Notice Historique sur le Sauvage de l'Aveyron. Paris. 1799. P. 50.

lively interest. Some of those who had held converse with Franklin and Thomas Paine on the momentous questions of the closing century, were still living; and by them the subject was brought before the Academy, where it produced exciting discussions, in which two men were prominent: Pinel, Physician-in-Chief to the Insane at Bicêtre, who declared the child idiotic; and Itard, Physician of the Deaf Mute Institution, who asserted that he was simply wild, or entirely untaught. This discrepancy of opinion is thus summed up by the latter:*

“The Citizen Pinel established between several children of Bicêtre, irrevocably struck with idiotism, and the child object of our present study, the most rigorous analogies, which would necessarily give for result a perfect identity between those young idiots and the Savage of the Aveyron. That identity was leading to the conclusion that, affected with a malady to this time looked upon as incurable, he was not susceptible of any sort of sociability or instruction. It was accordingly the conclusion drawn by the Citizen Pinel; which he, meantime, accompanied with the expression of that philosophical doubt spread in all his writings, and to be found in the previsions of any man who appreciates the results of the science of prognosis, only as a more or less certain calculus of probabilities.

“I did not partake this unfavorable opinion; and, despite the truthfulness of the tableau, and the closeness of resemblance, I dared to conceive some hopes. I founded them on the double consideration of the *cause* and the *curability* of that apparent idiotism.”

Itard, not believing idiocy curable, contrary to the misgivings of Bonaterre, and to the all but convincing demonstrations of Pinel, undertook this education. In devoting himself to this case, his object was not to improve or cure an idiot; it was “to solve the metaphysical problem of determining what might be the degree of intelligence and the nature of the ideas in a lad, who, deprived from birth of all education, should have lived entirely separated from the individuals of his kind.” Itard embodied this programme in five propositions:

* Itard, De l'Education d'un Homme Sauvage. Paris. 1801. Pp. 14, 15.

"1st. To endear him to social life, by making it more congenial than the one he was now leading; and, above all, more like that he had but recently quitted.

"2d. To awaken his nervous sensibility, by the most energetic stimulants; and at other times by quickening the affections of the soul.

"3d. To extend the sphere of his ideas, by creating new wants, and multiplying his associations with surrounding beings.

"4th. To lead him to the use of speech, by determining the exercise of imitation, under the spur of necessity.

"5th. To exercise, during a certain time, the simple operations of his mind upon his physical wants: and therefrom derive the application of the same to objects of instruction."

For more than a year Itard followed this psychological programme, perfectly well adapted to the education of a savage. But he seems, after this time, to have suspected that there were other impediments besides savageness in his pupil; for, though he never formally acknowledged it, he framed, about 1802, an entirely new programme, more fitted for an idiot than for a savage, whose foundation was physiology, and whose generality embraced:

"1st. The development of the senses.

"2d. The development of the intellectual faculties.

"3d. The development of the affective functions."

This evolution of the mind of Itard, founded, no doubt, upon a secret consciousness of his error in diagnosis, forced him to link his labors to more scientific traditions. Therefore we cannot very well proceed in the narration of the history of his idea, without tracing it back to its origin.

Since Morgagni, Boerhaave, Haller, had brought physiology to its proper place, that is to say, ahead of all other medical sciences, it had been considered and used as a reliable element of progress in various branches of anthropology. Among the special labors founded upon its recent discoveries, none had been more conspicuous than those of Jacob Rodrigues Pereire, who taught congenital deaf mutes to speak; communicating to them, not only a natural voice and a correct pronunciation, but even his *accent gascon*, or peculiar southern emphasis. So says every one who followed his

admirable teachings, Buffon, Lecat, Bezout, Diderot, etc. So can we say ourselves, with many living witnesses, Charton, Carnot, Leroux, etc., who have seen and heard in 1831, in the *salons* of the *rue Monsigny*, Mlle. Marois, the last surviving pupil of Pereire, when she came from Orleans to visit the then unknown grandsons of her beloved teacher. Yes, we heard, decrepit, that voice which Buffon heard in its silvery tones of youth. Unfortunately we were too young and ignorant to pay due attention to this wonder; and our reminiscences of it are bare of the particulars which could make them valuable.

In this teaching, Pereire entered into communication with his pupils, by the use of, first, the manual alphabet engraved in the curious Spanish book of Juan Pablo Bonnet, "*Reduction de las Letras, y arte para enseñar á hablar los mudos. Madrid: 1620.*" Second, of another syllabic manual of forty-odd signs of his own invention. Third, the natural resources of expression offered by pantomime. As soon as Pereire was understood by his pupils with the help of these temporary means of communication, he commenced to teach them to speak the speech proper, derived from the consciousness of the reciprocal nature of language. This consciousness could only be given to the deaf by a physiological discovery. Pereire analyzed the speech into two elements: the sound, and the vibration which produces it: the first which the ear alone can appreciate, the second that any flesh vibrating itself may be taught to perceive. He conceived that ordinary men hear the sound, without, most of the time, noticing the vibrations; but that the deaf, who cannot hear the sound, may nevertheless be made the recipients of vibrations. Hence, a given vibration producing only a given sound, the deaf taught to perceive the vibration, could not imitate it without reproducing likewise the corresponding sound of language. It is thus that he practically made his pupils hear through the skin, and utter exactly what they so heard. By this discovery Pereire demonstrated to the physiologists of his day, that all the senses are modifications of the tact, all touch of some sort.

Buffon, taken by surprise at the sight of the deaf-speaking pupils of Pereire, and though knowing only a part of their

mode of education, confesses to the novelty of the discovery in these terms: "Nothing could show more conclusively how much the senses are alike at the bottom, and to what point they may supply one another."—*Natural History of Man, 1st volume, first edition.*

The deaf mutes did not gain by this discovery, because their succeeding teachers could not even understand what it meant.

But important conclusions resulted from these experiments.

1st. That the senses, and each one in particular, can be submitted to physiological training by which their primordial capability may be indefinitely intellectualized.

2d. That one sense may be substituted for another as a means of comprehension and of intellectual culture.

3d. That the physiological exercise of a sense corroborates the action, as well as verifies the acquisitions of another.

4th. That our most abstract ideas are comparisons and generalizations by the mind of what we have perceived through our senses.

5th. That educating the modes of perception is to prepare pabulum for the mind proper.

6th. That sensations are intellectual functions performed through external apparatus as much as reasoning, imagination, etc., through more internal organs.

When Pereire was implicitly solving all these problems by his demonstration on the deaf mutes of the identity of all our senses, he was in communication with Jean Jacques Rousseau, both living near each other in the *Rue de la Platrière*, which has since received the name of one of them. Pereire had his school of ten to fifteen deaf mutes there, and Rousseau was in the habit of coming in, in a friendly, neighborly manner. It would be presumptuous to suppose what transpired between these two men, so much unlike their contemporaries. Rousseau so shy, but so extremely eccentric; Pereire so modest, but so intensely individual; both sincere monotheists in an atmosphere of incredulity; both intent upon their favorite subject, civilization in its surest form, education. But, in looking closely at their literary relics, we may more easily find ideas of Pereire in the "*Discours sur l'Inégalité des Conditions*," than ideas of Jean Jacques in the memoirs on

the restoration of the speech to congenital deaf mutes, inserted in the collection of the French Academy. However, no one can doubt the reciprocal influence two such master spirits must have exercised upon each other. The book of *Emile* is full of experiments upon physiological teaching which could only have originated in the school for deaf mutes; so identical are the theories of the book with the practices of Pereire. Nevertheless, the first school where deaf mutes were taught to speak naturally, and the first treatise on education whose object was to create, not a subject, but a man, stand side by side as the two indices on the road of modern education. In saying this we do not pretend to ignore other subsequent labors, such as the writings of Jean Paul Richter, and the school of Pestalozzi, whose originality is all from the *Emile*, and whose defects are mostly inherent.

When the first philosophical programme of Itard had partly succeeded against what was savage in his pupil, he conceived after Pereire and Rousseau, the physiological terms of his second one, which adapted themselves exactly to the functional incapacities of the idiocy of his pupil, so admirably described by Pinel; so that, *nolens volens*, the great teacher began to treat the idiot in the savage.

With what success? Dacier, the Perpetual Secretary of the French Academy, summing up the opinion of that scientific body on this subject, wrote officially in 1806 as follows: "This class of the Academy acknowledges that it was impossible for the institutor to put in his lessons, exercises, and experiments more intelligence, sagacity, patience, courage; and that if he has not obtained a greater success, it must be attributed, not to any lack of zeal or talent but to the imperfection of the organs of the subject upon which he worked. The Academy, moreover, cannot see without astonishment how he could succeed as far as he did; and thinks that to be just towards M. Itard, and to appreciate the real worth of his labors, the pupil ought to be compared only with himself; we should remember what he was when placed in the hands of this physician, see what he is now; and more, consider the distance separating his starting-point from that which he has reached; and by how many new and ingenious modes of teaching this lapse has been filled. The

pamphlet of M. Itard contains also the exposition of a series of extremely singular and interesting phenomena of fine and judicious observations; and presents a combination of highly instructive processes, capable of furnishing science with new data, the knowledge of which can but be extremely useful to all persons engaged in the teaching of youth." It is curious to see that Itard himself did not measure as justly as Dacier the compass of his physiological teaching, when he speaks thus on the same subject: "Leaving out the end aimed at in my self-imposed task, the education of the Savage of the Aveyron; considering this undertaking from a more general point of view, you cannot fail to see with some satisfaction, in the various experiments I instituted, in the numerous observations I made, a collection of facts capable of enlightening the history of medical philosophy, the study of uncivilized man, and the direction of certain kinds of private education."*

In the practice of physiological teaching Itard never went farther. He had undertaken the education of the Savage of the Aveyron, because he did not believe him idiotic; whilst Pinel warned him not to undertake it, on the ground of a contrary diagnosis: both thus giving their sanction to the doctrine of letting idiocy alone. When he first suspected that his savage might also be an idiot, his belief in the incurability of idiocy made him exclaim: "Unfortunate! Since my pains are lost and my efforts fruitless, take yourself back to your forests and primitive tastes; or if your new wants make you dependent on society, suffer the penalty of being useless, and go to Bicêtre, there to die in wretchedness.† He, of himself, never educated any other idiot, but directed "certain kinds of private education," which applied to a large range of cases, from idiotic to morally depraved; our common pupil was from among the former. Confined to these accidental and isolated instances, Itard never so much as hinted at the possibility of systematizing his views for the treatment of idiots at large, nor at organizing schools for the same purpose.

But he was the first to educate an idiot with a philosophical object and by physiological means. If he did not conceive

* Itard; *Rapport*, etc. 1807. P. 12.

† Itard. *De L'Education d'un Homme Sauvage*. 1801. Pp. 45, 46.

a philosophical method of education, he expressed and realized the first views on this subject; generalizing on his savage idiot the sensorial experiments made by Pereire on the touch of deaf mutes; and specializing on the same forlorn pupil the theories enunciated by Rousseau for the education of mankind. In this double process consists the completeness of his labors; alternately analyzing and synthesizing, he followed his special aims without deviating from his general object. Others may have continued his task, even enlarged, completed, and systematized it, but we do not know of any one who would not gladly exchange all subsequent titles for the authorship of the two pamphlets on the "Savage of the Aveyron." Even at present, we quit with regret his few unrivalled pages, to follow the evolution of his idea through other minds, after his bodily death.

The idea of Itard came to its most comprehensive realization under trying circumstances. The philosophical school to which he belonged in 1800, had gone to rest before him. In 1830-40 three schools were disputing the ruling of this century. The one called of Divine Rights, because it attributed a divine origin to the oppression of the many by the few, according to certain laws of heredity and priesthood; nothing between the parties but obedience and authority; education a limited privilege. The Eclectic school, whose highest aim was "classification according to capacity, and remuneration according to production;" perpetuation of classes if not of castes; education, like the rest, to the presumed capable; in fact, a liberal school classifying from the embryo, unequalizing from the foetus. The Christian school (St. Simonism), striving for a social application of the principles of the gospel; for the most rapid elevation of the lowest and poorest by all means and institutions; mostly by free education. The idea of Itard being congenial only to this last school, was nursed in it; in it experienced its natural growth and transformation; becoming from individual, social; from proportionate to the relief of special cases, commensurate with the wants of many idiots; and from adapted to this class of sufferers, competent to do the training of mankind. It is an undeniable fact that that school, and nobody out of it, has produced, among many works of eminence, the only

didactic treatises on idiocy, and the last of these closed in the following words:

"If it were possible that in endeavoring to solve the simple question of the education of idiots we had found terms precise enough, that it were only necessary to generalize them to obtain a formula applicable to universal education; then, not only would we in our humble sphere have rendered some little service, but we would besides have prepared the elements for a method of physiological education for mankind. Nothing would remain but to write it."

These lines stand, an unheeded appeal to write a work on physiological education. Teachers have plucked here and there some fragments of the training of idiots, as object lessons, imitation exercises, parcels of sensorial gymnastics, etc. Herbert Spencer has insisted upon a large application of the same to ordinary schools and children; but no *ex professo* book has been written; so that the last page of the treatise of 1846 may appropriately be the first one of that of 1866. This apparent dead-lock in the march of the idea finds its explanation in the fact that the school which developed the idea of physiological training was vanquished. When the power of the method was demonstrated by its success in the treatment of idiots, and when the sanction given it by the French Institute seemed to point to its early application to popular teaching, it became evident that circumstances were unfavorable. For it is not enough for an idea to be ripe in the mind of a thinker, and that it be hailed by the advocates of progress; the social medium in which it falls must be prepared for it as well; otherwise no production ensues from their contact. But generally the ground rejects the seeds which it cannot germinate, and they are carried, by what seems the fancy of the storms, to a more genial soil.

Germany, prepared by the labors of Comenius, Spiner, Francke, and nursed with the ideas of Rousseau by Basedow and Pestalozzi, had spread and enforced popular education from Switzerland to Denmark. England was only second to Germany in the same movement* which here received a par-

* More details might be given concerning the history and development of education in Europe, were it not that the whole matter has been ably and succinctly treated in the "History of Education. New York: 1860," to which we refer, by a talented writer under the *nom de plume* of Philobibulus.

ticular impulse from the character of the American people, and of the institutions of the country. As early as 1635 and 1639, laws for the formation of free schools had been enacted in the colonies of New England. Later, when the fathers of this Republic wished to perpetuate the spirit of independence and the capacity of self-government, they voted lands and money for the foundation of schools for all children of whatever sex or color. So that in every new township the opening of the school-house preceded that of any other public building, even of the post-office. The immediate results of this policy appear in the universal elementary instruction of the natives; in the eagerness for learning of the pupils of both sexes; and in the high character of the teachers, most of them women.

With such competition from nearly all quarters, it would be difficult to tell wherefrom will rise the next improvement in education. If we believe in the signs nearest to us, we should think that, supposing the American teachers only equal in point of learning to their European brethren, they have shown themselves so superior in point of understanding of philosophical questions, and of devotion to the down-trodden of our race (when hundreds of them have spontaneously left home and comfort, and foregone the protection of civilization to teach freedom to freedmen), that it is impossible to deny them the virtues necessary to carry into our schools the means of a signal improvement in our race; unless we are greatly mistaken our teachers are ready to spread civilization, not by the old process of overculture of a few, but by the philosophical elevation of the masses. We do not need to tell them, headed by Barnard, Holmes, May, Mrs. Stowe, etc., and by the spirit of Horace Mann, in what the coming progress will consist. Descartes pointed it out in these memorable words: "If it be possible to perfect mankind, the means of doing it will be found in the medical sciences." Pariset* said, more explicitly: "The physiological method of education is an example worthy of imitation, of the alliance of hygiene, medical science, and moral philosophy." And the curriculum proposed by Spencer comes nearer to this object than any previous one. A deferential reference to his work on educa-

* Rapport de MM. Serres, Flourens, et Pariset, à l'Académie des Sciences. Paris: 1843.

tion will allow us to dispense with discussing the matter of the teaching proper, and leave more room for the exposition of the general principles of the method.

According to this method education is the *ensemble* of the means of developing harmoniously and effectively the moral, intellectual, and physical capacities, as functions, in man and mankind.

To be physiological, education must at first follow the great natural law of action and repose, which is life itself. To adapt this law to the whole training, each function in its turn is called to activity and to rest; the activity of one favoring the repose of the other; the improvement of one reacting upon the improvement of all others; contrast being not only an instrument of relaxation, but of comprehension also.

But before entering farther into the generalities of the training, the individuality of the children is to be secured: for respect of individuality is the first test of the fitness of a teacher. At first sight all children look much alike; at the second their countless differences appear like insurmountable obstacles; but better viewed, these differences resolve themselves into groups easily understood, and not unmanageable. We find congenital or acquired anomalies of function which need to be suppressed, or to be given a better employment; deficiencies to be supplied; feebleness to be strengthened; peculiarities to be watched; eccentricities to be guarded against; propensities needing a genial object; mental aptness, or organic fitness requiring specific openings. This much, at least, and more if possible, will secure the sanctity of true originality against the violent sameness of that most considerable part of education, the general training.

The general training embraces the muscular, imitative, nervous, and reflective functions, susceptible of being called into play at any moment. All that pertains to movement, as locomotion and special motions; prehension, manipulation, and palpation, by dint of strength, or exquisite delicacy; imitation and communication from mind to mind, through languages, signs, and symbols; all that is to be treated thoroughly. Then, from imitation is derived drawing; from drawing, writing; from writing, reading; which implies the most ex-

tended use of the voice in speaking, music, etc. The senses are trained, not only each one to be perfect in itself; but, as to a certain extent other organs may be made receivers of food in lieu of the stomach and one emunctory may take the place of another, likewise the senses must be educated, so that if the use of any one be lost, another may feel and perceive for it. The same provision is to be made for the use of both sides of the body; the left being made competent to do anything for the right. But, instead of this, the present use of our senses is nearly empirical. No mechanic sees well enough at first sight all the parts of an engine; no draughtsman draws his pencil exactly where he means to; no painter can create the shades he has before him; no physician whose tact is perfect enough for the requirements of his profession; the imperfection of our sensorial and motive education always betrays, instead of executing the dictates of our will. Let our natural senses be developed as far as possible, and we are not near the limits of their capacity. Then the instruments of artificial senses are to be brought in requisition; the handling of the compass, the prism, the most philosophical of them, the microscope and others must be made familiar to all children, who shall learn how to see nature through itself, instead of through twenty-six letters of the alphabet; and shall cease to learn by rote, by trust, by faith, instead of by knowing.

True knowledge comes only in this wise. When a sense meets with a phenomenon, the mind awakened to the reality of the latter by its elements, which mark its analogy to and difference from other phenomena, the mind receives from said analogy and difference the impression which constitutes the image to be stored, evoked, compared, combined, etc. The character of the analogies and differences presented to the mind by circumstances, and mostly by education, forms our stock of ideas; thus the same piece of muscle looked at by the butcher-boy or by the microscopist awakens images entirely different, and ideas whose associations shall differ more and more at each new combination. The comparison of simple ideas produces compound ones: ideal creations of the mind, whose existence is purely relative to that mind or to its congeners. The assemblage in the same field of comparison

of a great number of ideas, primary or compound, gives rise to general ideas, as those of order, classification, configuration, etc. Ideas in their generality are abstract creations of the mind only commensurate with Immensity. As examples of generalizations may be mentioned, the progress of the knowledge of the surface of the earth, as leading to the generalization of its curves into the idea of its Globular shape: idea which sent Columbus in search of the antipodes; the idea of the quasi-infinite divisibility of matter which produced the Atomic theory; the presence of bodies everywhere, which gives plausibility to the hypothesis of Space; the suffering of the toiling masses which elevated the mind to the conception of Equality; the general harmony of the universe which dispelled the successive mythologies founded upon temporary antagonism of elements, and made room for the idea of the Unity of our nature. Thus correct sensations being the ground of correct images, images being stored as simple ideas, the contact of which produces comparisons whose abundance leads to generalizations; till the mind embraces knowingly and willingly from the simplest image to the most synthetic idea.

In previous periods the total absence of general education for the masses, and of systematic training for the perceptive, inductive, and deductive faculties in each individual, made progress a spasmodic affair, quite properly attributed to blind fate; whereas, in the future, progress resulting from the equal education of all women and men, and from the direct training of all their functions, shall appear to every mind as it really is, issuing from an intelligent and understood Providence, which leads us through a continuous series of improvements towards our religious destiny.

At this point physiological education merges into the moral training. This we cannot even sketch without going beyond the object of this introduction, which was two-fold.

1st. To trace the origin of the methodical treatment of idiots and their congeners.

2d. To present the philosophical history of the idea of training the functions, and all the faculties as functions (instead of only instructing children); from its germination to its maturation in the school for idiots, and to its actual fitness for the training of all children.

PART I

IDIOCY

Synonyms.—Named by Savage, *Amentia*; by Segar, *Imbecillitas ingenii*; by Vogel, *Fatuitas ingenii*; by Linnaeus, *Morosis*; by Cullen and Fodéré, *Demence innée*; by Willis, *Stupiditas*; by Pinel, *Idiotism*; by some English Writers, *Idiotcy*; by Esquirol and the majority of Encyclopædias and Dictionaries, *Idiocy*.

We shall use this latter term to express the physiological infirmity; and would like to see the name given to it by Pinel, *Idiotism*, preserved to express the specific condition of mind pertaining to idiocy.

Its definitions have been so numerous, they are so different one from the other, and they have so little bearing on the treatment, that their omission cannot be much felt in a practical treatise. Our own, if objectionable, will be found at least to correspond to a plan of treatment, both supporting each other; and may suffice until a better definition and a better treatment can be devised.

Idiocy is a specific infirmity of the cranio-spinal axis, produced by deficiency of nutrition in utero and in neo-nati. It incapacitates mostly the functions which give rise to the reflex, instinctive, and conscious phenomena of life; consequently, the idiot moves, feels, understands, wills, but imperfectly; does nothing, thinks of nothing, cares for nothing (extreme cases); he is a minor legally irresponsible; isolated, without associations; a soul shut up in imperfect organs, an innocent.

The *modus operandi* of deficiency of nutrition in the first period of life has not yet been fully investigated; it may bear upon all the tissues, but we are concerned here mostly with its action on the nervous system.

At the time when deficiency of nutrition takes place it stops the foetal progress, and gives permanency to the transitory type through which the foetus was passing; these transient types being to some extent analogous to the persistent forms of the lower animals. For instance *atresia palpebrarum* testifies to the presence of the cause of arrest of development

as far back as the third month of gestation; arrest of development of the inter-auricular septum leaves the human heart homologous with the heart of fishes; similar early arrest of nutrition of the encephalon leaves its circumvolutions unfinished at the low types of the orang-outang, the calf, or even lower. After the time at which deficiency of nutrition has stopped the ascending evolutions of the embryo at one of its low types, it sometimes continues its deleterious action of altering, or entirely destroying the foetus also. For instance, it may destroy one of two foetuses for the nutrition of the other, leaving next to the spared one an acephalus, or only a few fragments of an organized being; or it may partially destroy an encephalon at any stage of development, even after birth, by the intervening of hydrocephalus; or it may give rise to some embryonic malady, destructive of a set of organs or of functions. Though deficiency of nutrition may affect the whole being, it strikes by preference one set of organs, such as those of speech, of hearing, of local contractility. Deficiency of nutrition happens in two ways: slowly, when induced by depressing influences; or at once, when brought on by a shock. Hence the first leaves the child a prey to maladies of embryonic origin, or at best at a low point of vitality; the other leaves him well provided for by anterior nutrition, but torpid, or a prey to automatism, epilepsy, etc.

It is true that we ignore most of the influences which produce deficiency of nutrition in utero, but the fact itself cannot be denied. Impressions will sometimes reach the foetus in its recess, cut off its legs or arms, or inflict large flesh-wounds before birth; inexplicable as well as indisputable facts, from which we surmise that idiocy holds unknown though certain relations to maternal impressions as modifiers of placental nutrition. Farther, ignorance stops us. On the threshold of the investigation, instead of knowing all the causes of deficiency of nutrition, we are delayed by the necessity of studying the circumstances in which it appears, and so often produces idiocy.

The circumstances which favor the production of idiocy are endemic, hereditary, parental, or accidental. Idiocy is endemic only as connected with some forms of cretinism. It is considered hereditary where there have been cases of

idiocy or of insanity in the preceding or collateral generations. It is called parental when referred to certain conditions of the father or mother. The direct influence of the former ceases after conception; the intimacy of the latter with her fruit is incessant during the eventful periods of gestation and lactation; hence the share of the mother in the circumstances favoring the production of idiocy is the larger. She may have been under-fed in poverty herself, or through previous generations; or so miserably enervated by music, perfumes, savors, pictures, books, theatres, associations, that a precocious loveliness has outgrown her motherly capabilities, as *forcing* converts the pistils and stamens of flowers into beautiful fruitless petals.

She, being pregnant, has used for exclusive food un-nutritious substances, such as pickles, dainties, lemons, tea, brandies, etc.; or vomited all real food soon after ingestion.

She has conceived at a time when spermatozoa have encountered noxious fluids of venereal or menstrual origin, or have been altered in their vitality previous to their emission by drunkenness, etc. She is often passive under the causes of impressions, depressions, shocks, privations, exertions, abuses, excesses, altering the nutrition of the unborn or new-born child.

But all these circumstances do not seem to act with the same energy or frequency in the production of idiocy, which is attributed most of the time, by women worthy of being trusted, to sudden or protracted impressions of an accidental or moral nature. The same testimony appears to extend the power of these circumstances through the period of lactation, in which mothers, morally affected, have seen symptoms precursor of idiocy, such as convulsions, follow immediately the ingestion of milk, and idiocy, paralysis, epilepsy, or death supervene.

Accidental idiocy, after birth, is caused by un-nutritious diet, want of insolation and of other hygienic requisites; by hydrocephalus, measles, whooping-cough, intermittent fever, etc.

In the above circumstances, as far as we have learned, must we look for the origin of idiocy and its annexes. But everything pertaining to conception, gestation, parturition, lactation, remains enshrouded behind the veil of Isis. If

women would only speak, we should be able to call upon them in the name of science, a social protection they do not seem to need, nor care for in their present mutism; and we should soon be enabled to generalize from their individual experience frankly told, the laws of anomalous creation in our race. Since idiocy is ascribed to so many circumstances, taking place at such different periods of the formation of the child, it is not to be expected that it should assume an identical appearance; in fact, on entering a school, the idea of similarity is soon dispelled by the heterogeneous features of the inmates; therefore the same drawing cannot represent them but as a type, after a practical study of the varieties. These varieties are simple and complicated idiocy.

To clear the field we begin with the last named.

Endemic idiocy is interwoven with alpine or lowland cretinism and bronchocele, producing at birth the cretin-idiot, in youth the cretin-imbecile, and after puberty the cretin (simplex), able to procreate his like. Thus cretinism, besides its apparent geological connexion or origin, is hereditary, like scrofula; a taint in the blood, preparing children for idiocy or imbecility, according to the age of its invasion. This alpine cretinism is due to locality and to intermarriage, and it is never isolated; it affects the skin with a bistre or maroon color. Its action does not cease after having produced idiocy, for if its victim be put in a locality where cretinism will aggravate, idiocy will do the same; and if placed in circumstances of climate, of hygiene, of exercise, where cretinism may improve, idiocy will also improve, and shall become more amenable to the physiological treatment, as the labors and devotion of Guggenbühl have abundantly proved. The lowland cretinism of Belgium, of Virginia, etc., with its discrete goitre, its grey and dirty straw-colored skin, bears the same relation to idiocy and imbecility as the more extensive alpine variety.

So does the furfureaceous cretinism with its milk-white, rosy, and peeling skin; with its shortcomings of all the integuments, which give an unfinished aspect to the truncated fingers and nose; with its cracked lips and tongue; with its red, ectropic conjunctiva, coming out to supply the curtailed skin at the margin of the lids.

Let us here remark that bronchocele may exist with or without cretinism, or cretinism with or without bronchocele; but that cretinism cannot be found without being allied to one of the three alterations of the integuments above described.

These alterations are not observable in the following forms of complicated idiocy:

Infantile convulsions may produce idiocy; epileptic seizures strike with idiocy in the first age, with imbecility in the second, later with dementia. Idiocy receives a deleterious influence from epilepsy; attacks of which sometimes obliterate the faculties gradually and steadily; at other times they carry away at one sweep all mental acquirements for a time, or permanently.

Chorea acts in like manner, less suddenly but with more steadiness, by the incessant shaking of the whole frame, through the nervous "dance." That is the way in which it gives unsteadiness to every movement, to every impression, to every expression, keeping the subject in a state of tremulousness, unfit to be the starting-point of physical and intellectual operations, and of forming or transmitting correctly the orders of the will. Hence the difficulty of improving idiocy before curing chorea; and if we do not succeed in this, shattered nerves, a tendency to tetanic horrors, epilepsy and paralysis may be expected.

Extensive paralysis or contractures, particularly when affecting the upper limbs, act by depriving the child of important means of communication and of knowledge, producing the symptoms of superficial and aggravating those of profound idiocy, where this latter co-exists with these accessory infirmities.

Deafness and blindness from birth have the same effects as paralysis on ungifted children, by depriving them of the cognizance of a whole series of phenomena. But it is a fact curious enough to be noted, that partial obliteration of one of these channels of knowledge will produce the symptoms of superficial idiocy surer than its complete destruction. One must not forget that those two infirmities, cecity and deafness from birth, leave in the best educated an idiosyncrasy

dreaded in the workshops where the deaf or blind might otherwise compete with other mechanics.

We note as important that idiocy is more frequently met with epilepsy and chorea, less with paralysis and contractures, least of all with deafness and blindness; and that its decreasing severity is quite in the same ratio.

We come now to unmixed or simple idiocy.

Idiocy without complication presents itself under various aspects; and we have shown that it could not be otherwise, since some of the circumstances already known as favoring its production are themselves so varied. This diversity of character will be fully exposed in the following division of idiocy, in the analysis of its symptoms, and in subsequent observations.

Idiocy is called profound when the ganglia are altered, and superficial when the peripheral termini of contractility and sensation only seem to be affected. It is called organic when the organs are sensibly altered, and functional when our imperfect instruments and observations do not permit us to trace the organic lesion as we do the functional disorder. It is called sthenic when it gives the child nervous impulses without object; and asthenic when it leaves him without them, when they are wanted for some object. Though we are ready to acknowledge these last apparently contradictory symptoms as simple manifestations of the same low type of vitality, produced by difference of circumstances, nevertheless, these symptoms give too precious an indication of the different treatment required for each, to be omitted; since the division founded upon them has a practical, if not a truly scientific import. Other divisions might be devised, but as they bear on the psychological symptoms exclusively, and repose more on degrees than on differences, they are more apt to disclose the ingenuity of their framers than to prove new and beneficial.

In regard to the pathology of our subject, we will divide it into organic and physiological.

Organic pathology related to shape, size, proportions and other characteristics observable on the living; and to alterations of internal structures which diagnosis may suspect, but anatomy alone can disclose.

The pathological symptoms of idiocy have, unfortunately, been ascribed only by men who never knew or never taught anything about the subjects of their post-mortems; so that we have descriptions, masterly or not, of organic anomalies, without a word of their corresponding psycho-physiological symptoms. Such a thing could not be done for any other pathological condition than idiocy, without meeting with the most merited censure. If we, personally, deserve the contrary disapprobation for having studied the physiology of idiocy more than its pathology, the exceptional difficulties we encountered, and the novelty of the undertaking are our excuses.

Though idiocy does not stamp children with any particular shape of the body, still, be it the effect of unequal nutrition, of want of normal activity of will in the gathering up of the limbs to the body to form the various attitudes, the great majority of idiots seem to be not so much ill-shaped as ill-proportioned; the exceptions of splendid build covered with rich integuments, belong particularly to cases in which may be detected a tendency to insanity, or some complication, such as paralysis of the organs of speech.

When the central nervous apparatus is affected in idiocy, the following alterations may be noticed: The substance of the brain is softer generally, or partially harder, and as it were shrivelled. The color is paler, with less distinction between the white and grey matters. The circumvolutions are neither so numerous nor so well defined on the surface, nor so deeply penetrating. The hemispheres do not expand above the sensory ganglia and cerebellum with their normal amplitude. The lateral and posterior lobes being particularly short of their normal expansions; the cerebellum which is not fully covered by the hemispheres being larger in proportion.

If the cranium were always and everywhere of the same thickness, and if the brain were always filling the whole of its cavity, the external configuration of the skull might be taken as the counterpart of the form of the brain, and used as the relative measure of its bulk. But the reverse is true. Crania are very thick or very thin, partly thick and partly thin, particularly so at the frontal sinus, the tables of which

are often besides vastly apart. Moreover, the brain is very far from always adapting itself with the same exactness in reality as in theory to the form of the cranium. In fact there are cases in which the brain presses so strongly against the cranium, that either the internal table is eroded by the convolutions and bears a deep imprint of them, or other cases in which the compression exercised by the unyielding cranium is such as to deface all convolutions and enfracturabilities of the hypertrophied mass; cases in which the distension of the cranium is due to the presence of a tumor, of hydrocephalus, or of hypertrophy; anomalies as difficult to discriminate on the living subject as the thickened tables of the skull.

If we pass from the sizes of large skulls, which are attributed to hydrocephalic origin, to those which present microcephalic proportions we shall see that we cannot judge by them more accurately of the condition of the brain. Sometimes a very small skull encloses quite a bulky and healthy encephalon; sometimes the skull will not be so very small, only irregular, and disclose internal anomalies, such as the following found by Lebert:* "Cerebrum very small, right hemisphere larger and 'bombé,' left smaller and flattened; circumvolutions narrow, more so posteriorly, where they are of the size of ground worms; they are twisted, and in their course are puffed up and constricted alternately." In other cases, the hemispheres may be found almost without convolutions, and the medullary substance covered only with a thin layer of cineritious matter. Or, in the absence of the corpus callosum, the hemispheres were found to communicate only through the medium of the anterior and posterior commissures. Or the pineal and pituitary bodies were much atrophied. These anomalies and many more are recorded from the autopsies of microcephalic idiots, but as usual without a word as to their corresponding psycho-physiological disabilities.

To sum up what we have said about size by two extreme cases, we are acquainted with a lady fifty years of age, whose head measures twenty-seven inches in circumference, and above twenty-two from one external auditory foramen

*Traité d'Anatomie Pathologique. Vol. I., p. 84. Pl. IX, fig. 1 and 2.

to the other across the vertex, who could, in younger days, perform the duties of a Sunday-school teacher, and even now behaves like a lady in every respect. And we have seen enough of the Aztec children, so well observed by Dr. John C. Dalton, whose heads are under thirteen inches in circumference, to be sure that, previous to their training as show-things, they could have been educated like human beings, and improved as much as extreme microcephalic children have been by Drs. S. Howe and H. B. Wilbur (see Observations in Appendix). To close what we have to say about the size of the heads of idiots; it is most of the time quite normal, though it looks too big in infancy, because it stands on a sickly frame, and too small later, because the body has grown and the head has not, owing to the deficiency of special nutrition and to deprivation of intellectual gymnastics. Lastly, the two tables of crania, large or small, not being exactly parallel, and being sometimes very far apart, the internal capacity of the skull cannot be founded upon its external measurements. Hence, observers have tried to obviate this difficulty, at least on the dead, by measuring the internal capacity with instruments, liquids, sand, or seeds; but these new means could no more be invoked as tests of idiocy than the measure of the external size; since that cavity was not on the living necessarily filled up with medullary and cortical substance; and since savages are endowed with the full capacity allotted to their race, who have heads whose size is inferior to that of the idiots of ours.

If we pass from the consideration of the external size and internal capacity to that of shape, we see, equally, all sorts of forms among the heads of idiots. The shape of the head may be altered from its primitive type in each race by disease or by art. Idiocy presents mostly the following deformities: Heads flattened anteriorly or posteriorly, or circularly compressed to a cone, which tends upward or backward; flattened at the sides, or at the top; very low or very high, as if crowned by a stony table, or bilobed by a depression running along the coronal suture; or with both parietal eminences greatly exaggerated; or the vertex expanded like a balloon, whose neck would be represented by the compressed forehead and lower lateral bones, reposing on a

diminutive face. These deformities are the principal, but many idiots do not present any of them, whilst they are found among people who practice them, not to incapacitate their children, but to make their heads correspond to some desired type by a sort of plastic orthophreny. We notice, besides, two kinds of disproportion in the component parts of the cranium. One from side to side, which, very rarely extreme, is seen accidentally in idiots and insanes; but which, in its milder forms, may be detected on, we may say, any cranium; even the circumvolutions presenting commonly, from side to side, disproportions and differences: consequently the disproportion from side to side of the head is not a test of idiocy.

The other disproportion affects the relative development of the three segments forming the vault of the cranium; we will consider them in their relative expansion and in their mode of uniting to form a cavity. The posterior segment contains the cerebellum, and so much of the hemispheres as expands over it in proportion to natural or acquired development; the second contains the primitive cerebrum, the tubercula quadrigemina, and other ganglia; the third contains the largest accretions made to the human brain, according to race and education, in such a bulk as to atrophy the olfactory lobes, to depress the orbital cavities, and to raise the vault of the frontal bone very sensibly since the short period of two thousand years, as appears by all the monuments of our race. The harmonious development of these three parts, according to the standard for each race, represents the harmony of manly functions; and when it exists in large encephalic masses, insures great mental power.

Considering the modes of formation of the sutures by which the bones are united; the sutures may be formed too hastily, when there is atrophy of the brain, and are smooth and cannot be felt; or under the influence of a serous inflammation, and then their serrated structure is felt rough and elevated by the finger through the thin integuments. But when circumstances have prevented or retarded the formation of the sutures, palpation detects the opened or imperfectly closed fontanelles, the presence of wormian bones in anormal num-

bers, or the loose condition of the coronal, sagittal, and lamdoid sutures.

In the relative development of the segments, and in their modes of suture to form the cranium, resides the harmony or disharmony which strikes more than size or shape in human heads. Reserving the exceptions, any deviation from the Caucasian type among our children, in respect to harmony of proportions, must be looked upon, *a priori*, as representing some anomaly in their faculties; and any imperfection in the mode of union of the segments of the skull cannot fail to enlighten the etiology and pathology of our subject.

Nothing hinders us now from entering into the study of the physiological symptoms after having taken a rapid survey of the infant born idiotic, or predisposed to idiocy.

The only thing which could tempt us to form a diagnosis when the child is just born, is the often monstrous shape exhibited by the head. But it is so difficult to appreciate what part of it is due to deficiency of nutrition or to transitory compressions from manœuvres or instruments; and the head is endowed with such a power of reaction and self-modulation against these transient deformities, that we had better let it receive its own finishing touch before venturing on the expression of a judgment upon its unfinished state. But after the first cries, the child shuts himself up into a chrysalid life. He is rosy and rather puffy, or greyish and shrivelled in his loose integuments, according to his general health. For a time nothing more of him may be foreseen than is seen. Even a few months later, if the mother, feeling her baby without reaction in her embrace, seized with a secret presentiment, seeks for advice, the physician rarely happens to see him otherwise than nursing and sleeping. He has scarcely the chance to notice the head hanging back, or rolling on the pillow automatically; the eyes unlighted and playing the pendulum in their sockets, fixed, or upward or sideways; the difficulty of swallowing the milk once drawn in the mouth; the absence of voice or its animal sounds; the inability of the spine to support the body; the flaccidity of the legs; the hands closed, thumbs inward, by the side, instead of coming out from the cradle to take with a firm grasp their share of this world.

In the midst of this uncertainty, profuse salivation, involuntary excretions, imperfect sensations or disordered movements appear daily more settled, instead of the opposite abilities vainly expected. Or after a fall, or blow, exposure to cold, insolation, prolonged successions, fright, or in the period of teething, coma sets in or convulsions appear. After which some function of the reflex or voluntary order, motor or sensitive, is impaired. But the commotion of the cerebro-spinal axis may be temporary or prolonged, producing more convulsions, deeper coma, other incapacitations; throwing the little sufferer far behind his fellows, or leaving him a confirmed idiot. Between these two extremes the majority of young idiots do not differ very sensibly from common babies; because the power of both may be expressed by the same verb, they cannot. But to-morrow the well infant will use his hands, the idiot will allow his to hang in half flexion; the first will move his head at will, the second will toss it about; the look of the former penetrates every day farther than the domain of the touch, that of the latter has no straight dart and wanders from the inner to the outer canthus; the one will sit erect on his spine, the other shall remain recumbent where left; the first will laugh in your face with a contagious will, the second shall not be moved into an intellectual or social expression by any provocation whatever. And each day carves more deeply the differential characters of both; not by making the idiot worse, unless from bad habits gotten by neglect, but by the hourly progress of the other. Idiocy so viewed from its origin is a continuance of the isolation and helplessness of babyhood under ampler forms and obsolete proportions. Compared unavoidably with children of his age, the idiot seems to grow worse every day; his tardy improvement looking like backward steps. With his incapacity of action, of expression, of feeling, he makes a sickening sight indeed by the side of a bright child entering into the intricacies of life as on an open play-ground.

At this stage there can be no mistake; we see plainly what he is, and we can describe what we see. This is the time when the study of the physiological symptoms will make up for the deficiency of the anatomico-pathological ones.

The functions of organic life are generally below the normal standard. The respiration is not deep; the pulse is without resistance. The appetite is sometimes quite abnormal in its objects or limited to a few things, rarely voracious, though it looks so, owing to the unconventional or decidedly animal modes of eating and drinking of these children. The swallowing of the food without being masticated, only rolled up in saliva, resumes many of these imperfections which are to be attributed in variable proportions to absence of intelligence, want of action of the will on the organs of mastication and deglutition, deformity of and want of relation between the same. As might be expected, imperfect chewing produces on them, as on other children, unpleasant effects, but no more. Their excretions cannot be said to present any dissimilarity from those of others which our senses can discriminate; only their sebaceous matters are as different from ours as ours are from those of the variously colored races, or from those emitted in most diseases.

The functions of animal life, or of relation, are generally affected in idiocy; either by perversion, diminution, or suppression. We shall begin the study of these anomalies in the organs whose contractility has for object the movements of displacement and prehension.

The incapacity of walking, and of prehending objects, to whatever degree it exists, gives the measure of the isolation of the idiot. He is isolated because he cannot go to the distant phenomena; he is isolated because he cannot possess himself of those which come in the range of his imperfect grasp; he is doubly immured in his muscular infirmity. The same motor function may exist, but escaping the control of the will, it produces movements more or less disordered, mechanical, spasmodic, or automatic. Disordered, when their want of harmony prevents the accomplishment of their object; mechanical, when their recurrence, in the course of other normal movements, cannot be otherwise produced or prevented, but can hardly be postponed by a superior influence; spasmodic, when they proceed from an accessory condition of the nerves congener to chorea or epilepsy; automatic, when they consist in the continuity or frequent recurrence of a single unavoidable gesture, without object or meaning. The

simple disorder of movements involves a waste of nervous power disabling, more or less, the child for useful activity, but not depriving him of it entirely. The mechanism throws, unexpectedly, some instinctive jerk or motion in the midst of well-regulated actions. The spasmodism accompanies all actions, as in chorea, or substitutes itself at times for all the normal acts, as in epileptic seizures. The automatism acts as a substitute for all, or nearly all other modes of contractility; it incapacitates more and more the child's muscular power for any useful purposes; and, as a sorry compensation, furnishes him with a supply of involuntary instead of voluntary exercise. Of the four abnormal ways of expending uselessly and unwillingly the contractile force allotted to the muscular system, automatism is the most tenacious, when, for years past, no physiological action has been induced by proper training in its stead.

Idiocy affects the body in its general habits, as bending forward, throwing the head backward, moving it in a rotatory manner which seems impossible, swinging the body to and fro, or in a sort of sideway roll.

Another anomaly of contractility is its difference in either side. Whatever wise provisions have been made to secure the unity of action of the two sides which look like two men living right and left under the same skin and name, as anastomoses everywhere, decussations in the medulla spinalis, medulla oblongata, and nerves of special sense; connection of both cerebrum and cerebellum, by the pons varolii, corpus callosum, and commissures; notwithstanding all these, one side of the body, of the limbs, of the nerves, and, some observers think, of the brain too, seems to take the lead. Who uses equally both hands? Who is sure that he does not think and express himself mostly by the impulse of a single hemisphere? These apparent deviations from the pre-ordained human type strikes more in idiots, who are often more incapable, colder or weaker on one side without hemiplegiâ, who walk better and step higher with their left foot, who are oftener left-handed than ordinary children, and who write, if not corrected, from right to left, as the Bible was written.

Contrarily, idiots, but not the lowest, seek sometimes for the repetition on one side of impressions they have previously

received on the other, even if these inflict pain. But common children are found doing the same, and very likely continue to do it until experience has taught them the more summary process of trusting to the experience of a single side-apparatus.

The swinging of the body in walking, or in the sitting posture, is characteristic of the disorders of contractility; besides, it is no doubt connected with some defect of the central nervous organs. We have seen similar uncertainty of gait in persons who have received a severe shock, or who labored under meningitis, who carried a large aneurism, or after having repeated pleurisies on one side; and we noticed the same swinging in a young soldier who had two bullets lodged in the left side of his chest. Besides, a set of special organs may be separately or collectively affected, as we have seen those of the movements of totality by want of synergy, which simulates paralysis; or by one of the anomalies of motion mentioned above. By inability of transmitting the orders of the will to any of the special organs, their functions are abolished or only altered in many modes which challenge a general description; and by the disorders of mechanism, automatism, etc. Moreover, special functions may be variously disordered in so many ways, that sooner than writing a volume full of these anomalies, we shall refer for their description, if important, to some observations to be found at the end of this volume. Another reason for not describing them separately is, that they are ordinarily blended with those of special perception; and that some of them will, in consequence, be treated of, together with some nervous disorders, under the common head of anomalies of the senses.

As we just premised, several anomalies of movement in idiots are more or less allied to dullness, exaltation, or other perversions of the touch; and we have to mention a few of these complications before studying the isolated deviations of the sense itself. Dullness of tact incites some idiots to strike their fingers against the hardest bodies, with apparent pleasure and irresistible eagerness; others to throw their thin-boned foreheads against persons and things, making them rebound and resound as if suffering were pleasure, or both these feelings abolished. Contrarily, some children whose hand-tact is null, or hand-touch uneducated, substitute to

them the head-tact and touch, actually tacting with the latter the things they desire or repulse; caressing with it the person they love. How could so different aberrations of a sense exist in idiots? But how is it that as soon as their hand is taught to touch, their forehead loses the power of touching and feeling?

The following are examples of another kind of hyperæsthesia:—Some of our children will be unable to touch anything, but with the delicacy of the humming-bird, and seem to suffer greatly from any other mode of contact imposed upon the hands. The feet of others are so much affected with similar exaltation of sensibility, that the thinnest shoes pain them, and the contact of the softest carpet or floor makes them recoil or advance, as if they could not help it, and as if walking on live coals. The hands of one child will move with prestidigitative briskness without apparent object, single or interlaced, to intercept some rays of light falling obliquely into their vacant eyes. Other hands, affected with disorder of the touch, without obvious complication, are caressed, sucked, bitten, till the blood starts, or a heavy callous is formed to protect them; others are constantly bathed in saliva, and their skin nearly resembles that of the washer-woman: these hands feel, out of the mouth, like fish out of water. We could multiply these examples of anomalies of sensation, single or double, merely tactile or altogether tactile and contractile, by which the hand is robbed of its powers as an instrument of touch, as well as of prehension.

Setting aside these localized tactile disorders, general sensibility proper is dull in idiots, who are soon benumbed by cold and less affected by heat, but much prostrated by the atmospheric modifications of a thunder-storm.

With them the Taste and Smell are oftener indifferent than anormal. Rarely we see them have a taste for non-alimentary substances, or an exclusive appetite for one kind of food. Some of them, without swallowing, chew beads, suck pieces of broken china, etc., with apparent relish. The Smell may take possession of the same articles and scent them for hours, or delight in the fragrance of two pieces of silex, stricken one against the other; or, this sense may substitute itself for any other, as a means of discrimination and knowledge;

or, on the contrary, be dead-like to all intent and appearance. But the difference between the errors of functions of these two senses is, that the Taste is oftener depraved, and the Smell is more frequently exalted.

The Hearing is sometimes so passive and limited, and the intellectual wants so disinterested to the noises transmitted to the ear, that the idiot, though possessed of perfect organs of audition, is practically deaf, and, of course, mute; no deafness, and yet no hearing. Therefore, it is prudent to remember that next to the deafness from birth, or from infantile diseases, there is an intellectual deafness from idiocy; the only one which we shall specially consider. In this interesting condition the child may hear and even audit the sound of objects that he knows and wishes for, and none other. For instance, he hears music and no articulated voices; or he may retain and repeat tunes, and not be able to hear or repeat a single word. He may even, in extreme cases, be absolutely indifferent, and, consequently, appear really insensible to sounds; and then the diagnosis has to be postponed till the state of the organ and function is thoroughly ascertained by an experimental training of that sense. So far, he is practically deaf and mute, but is not so organically. This difficult point in diagnosis has caused many mistakes.

The Sight may be as badly and more ostentatiously impaired than the Hearing. Be it fixed in one canthus, be it wandering and unfixable, be it glossy, laughing, like a picture moving behind a motionless varnish, be it dull and immured to images, its meanings are not doubtful; it means idiocy. Our impressions here would be very incorrect if they conveyed the idea that these defects of vision prevent the child from seeing. The images being printed on their passing into the ocular chamber, as the river-side scenery is on the passing current, the child, when he pays an accidental attention, gets a notion of some of them, but the transitory perception produced thereby can hardly serve him for educational purposes. The principal characters of this infirmity are, the repugnance of the child to look and the incapacity of his will to control the organs of vision; he sees by chance, but never looks. These defects of the Sight, when grave, are always connected with automatic motions, and both oppose serious

obstacles to progress; one by the ease with which the child can use his negative will to prevent the training of his eyes, the other by depriving him of all knowledge to be acquired farther than the touch can reach. This complication makes a child look very unfavorably indeed, and increases much the task of his teacher.

Some idiots are deprived of speech, that is to say, do not pronounce a word. Some, speaking a few words more or less connected in sentences, have yet no language; for the word language conveys with it the meaning of interchange of ideas. In this acceptation, language does not belong to idiots before they are educated, nor to those who are but imperfectly so, and, consequently, they have a speech more or less limited, but no language; strictly speaking, speech represents the function, language the faculty.

When we come to examine the anomalies of the speech, as here defined, it is well to exclude, previously, the many organic disorders which may interfere with it as a function, and which have nothing to do with idiocy but as an external impediment and exogenous aggravation. For, because a child is idiotic, it does not necessarily follow that his organs of perceiving speech and of expressing language may not be impaired by some independent affection. Idiotic or intelligent, a child may be deprived of hearing, or of the movements necessary to form the speech, directly by malformation or paralysis, or indirectly by the many causes producing deafness. These are the causes of the organic mutism which must never be attributed to idiocy, but which too often aggravates it.

To substantiate in a few words the causes of the functional mutism derived from idiocy, we point out; first, the incapacity of the will to move the organs; second, the long silence in which idiots have confirmed their mutism, like prisoners have gotten theirs in protracted confinement; third, the absence of persevering and intelligent efforts of their friends to make them speak; fourth, the want of desire to exercise that function, and the want of understanding of the power of speech as a faculty.

In this wreck of powers, one human, irresistible tendency or impulse is left him; for as low as we find him, lower than

the brute in regard to activity and intelligence, he has, as the great, the lowly, the privileged, the millions, his hobby or amulet that no animal has: the external thing toward which his human, centrifugal power gravitates; if it be only a broken piece of china, a thread, a rag, an unseizable ray of the sun, he shall spend his life in admiring, kissing, catching, polishing, sucking it, according to what it may be. Till we take away that amulet, as Moses took it from his people, we must have something to substitute for it. This worship or occupation shows that if the idiot can form, of himself, no other connexion with the world, he is ready to do so if we only know how to help him.

That the idiot is endowed with a moral nature, no one who has had the happiness of ministering to him will deny. Epileptic, paralytic, choreic, or imbecile children will often strike or bite their mother or affectionate attendant. If any idiot is found doing the same (and we never found any) he must have been taught it by some cruel treatment imposed upon him. In general, as soon as his mind is opened to reflection, the tender family feelings are so deep in him that they often interfere with his successful transplantation into the broader and richer ground of our public institutions.

It is true that his habits are sad, droll, or repulsive; that his doings are often worse than none; but these manifestations exhibit as much the carelessness and want of intelligence of the parents or keepers as they do the primary character of the infirmity. Does not the idiot, in making his silly gestures, tacitly say, "See what I am doing; if you knew how to teach me better and more I would do it." It is true, that previous to being educated, the slightest work is too much for him, and makes him recoil; but if we succeed in making him believe that he has accomplished a real object, emulation will appear and shed a ray of satisfaction over his face. He is sensible to eulogy, reproach, command, menace, even to imaginary punishment; he sympathizes with the pains he can understand; he loves those who love him; he tries to please those who please him; his sense of duty and propriety is limited, but perfect in its kind; his egotism is moderate; his possessive and retentive propensities sufficient; his courage, if not Samsonian, is not aggressive, and may easily be culti-

vated. As a collective body, idiotic children are, in their institutions, equal in order and decency, in true lovingness, if not in loveliness, to any collection of children in the land. Their moral powers are influenced by isolation, company, multitude, silence, turmoil, music, human eloquence, as they are in all masses of mankind. If we are asked how we pretend to see all these good and promising dispositions in the unfortunate subject whom we have depicted as more or less motionless, speechless and repulsive, we can affirm that the idiot, even when neglected in his lowest conditions, does not manifest any character contrary to the one here described; a character which we have seen him assume, steadily and uniformly, under the influence of a proper training, and, as we firmly believe, in virtue of his own moral nature; he is one of us in mankind, but shut up in an imperfect envelope.

Therefore we must not confound with imbeciles, insanes, epileptics, etc., the harmless idiot, sitting awkwardly, bashful, or at least reserved on our approach. He will answer us if he can, rarely mistaking, never deceiving, but oftentimes failing to understand. His mind is extremely limited but not deranged, and with no special tendency to final insanity. He has been hurt often, but he never assailed anybody; he loves quiet places and arrangements; repeated monotonous sounds, or stillness, and above all plain and familiar faces; he has a look, not of envy at things and persons, but of abstraction, gazing far out of this world into a something which neither we nor he can discern.

How could any child, subject to other disease or infirmity, be mistaken for him? Nevertheless this confusion takes place. Practically and legally, the idiot has been assimilated to unfortunate beings whose rights upon society are different from his; and he has suffered deeply by the mistake.

The child nearest akin to an idiot is called simply backward, in French *enfant arriéré*; his character may be better delineated by comparison with the idiot, who presents even in superficial cases an arrest of development, whilst the feeble-minded child is only retarded in his. The idiot has disordinate movements, cannot use his hands, swings his body in walking, presents some sensorial vices or incapacity; on the other hand, the backward child is free from any dis-

ordered activity, uses his hands naturally but with very little effectiveness, walks without defect, but without firmness or elasticity, presents no sensorial anomaly but does not much use his senses to quicken his sluggish comprehension; when the idiot does not seem to make any progress, and when the ordinary child improves in the ratio of ten, the backward child improves only in that of one, two, three, or five. This child may be, and is in fact, actually educated with the confirmed idiot; and there is no inconvenience, but advantage, in their being treated alike.

The same could not be said of the following case, which is now as rarely met among idiots as it frequently was thirty years ago in the "*hospices*" and poor-houses. He looks dignified, sad, depressed, wistful, immovable, idiotic—but worse than an idiot, he is a dement. There does not seem to be a sensible difference between them, but idiocy is accompanied by some sensorial disorders, begins young, by its worst symptoms, and generally ends quite early; whilst dementia commences in later life, is accompanied by an insidious touch of paralysis, especially of the sphincters; it soon alters the alae nasi and the external auditory apparatus, and eventually may continue to a great age, ending by its worst symptoms.

A young lad who looks and stands like an idiot, with deep, dull eyes, hollow cheeks, thin, hanging hands, flesh gone from his long, lank limbs, and empty frame; a prey to fever, languor, inappetence; tired of everything, forgetting instead of learning, avoiding company and light, sleepless yet never wide awake, speech embarrassed, mind absent, hope, gayety, cheerfulness, friendship, love, future, all given up for the worship of one's self, and of a few apparitions evoked by the mania of self-destruction; his tendency is toward early death, through imbecility or dementia.

Though insanity is not common among children, it is easily mistaken in them for idiocy, notwithstanding that every day marks a new difference between the two. Thus incipient insanity does not affect the general, nor the special movements as idiocy does; nor the general, but the sensorial sensibility, producing mistaken sensations as hallucinations, that idiocy does not. Intellectually, the young insane may learn easily or with incredible facility; but has rarely the com-

prehensive retention which amasses true learning; the idiot has a negative will or none, the insane has a deep, fated-like determination. We have observed two classes of these children laboring under a more or less confirmed tendency to insanity. One has a firm step, bright colors and general richness of tissue; his ears reddening occasionally, and his eyes flashing instead of quietly looking. Incapable of attention though he tries hard, loving and impressible, there may be something the matter with his speech, as periods of mutism and of loquacity; thus, by times, he cannot repeat a word, and at others he will spontaneously emit several sentences. He commands with difficulty to his movements, as those necessary for drawing, gymnastics, etc. He is clean, has no difficulty in dressing himself, his hands are perfect, no function seems altered; but the older he grows the stranger he looks, till finally he gives signs of incoherence. The other one is a fine child too, physically, but rather pale and angular. His traits of character are more strongly delineated than those of the first. His features are sharper, his look more shaded by the brow, his mind deeper, his intellectual culture easier, his moral propensities worse. He is jealous, cruel, unflinching, yielding to force only, losing nothing of his natural tendency to cruel sprightliness under a temporary pressure of authority. He has of the idiot neither the gentleness, the blank look, the deficiency of understanding, the timidity, the obedience, the affection. Every day shows his moral character by more and more of these traits which make him dangerous, and fit him only for seclusion. When quite young, children such as these are readily accepted in the institution for idiots, because they do not then apparently differ from these latter, as the baby idiot looks like a well-born child, as long as both cannot make any comparative show of activity; so, as long as there can be no display of reasoning or of human passions it is nearly impossible to discriminate them. Of the two kinds of children with insane propensities, the first needs more education, and is more impervious to it; the second requires more moral training, and is the more refractory to its rules. We have studied only those two classes of children tending to insanity, but we think that there are several more.

Next, and last, we notice the imbecile who, whatever may be the origin of his infirmity, is generally mistaken for an idiot. He is rarely affected with muscular or sensorial disorders, unless from accessory causes, such as chorea, or hemiplegia, or made worse by self-abuse; his affection is more referable to the condition of the nervous centres, and is of an intellectual cast, bearing on attention, memory, reason, etc. He has arrived at that condition of mental degeneration by any of the circumstances which produce deficiency of nutrition, and cause idiocy in early life, and imbecility in subsequent years. The imbecile having, previously to the arrest of his development, acquired experience of things and persons, and gathered, consequently, instinctive and social feelings; the same cause which leaves at the outset of life, the idiot incapable, ignorant and innocent, leaves, later, the imbecile self-confident, half-witted, and ready to receive immoral impressions, satisfactory to his intense egotism. Hence, we see him coming forward with an ungainly aspect, making show of his trinkets, and offering them for trade; he can read, more or less; speaks confusedly, and recites verses with pouting emphasis and sprinkling of saliva. He might do some kind of work which may be accomplished by the repetition of simple movements, if his mind could be steadied to any employment. He delights in the company of street boys, who joke, cheat, and abuse him. These tastes and habits educate him to boasting, lying, cruelty, artifice, jealousy, and even to plotting, robbery and arson, with a strong dose of hatred for those who advise him to take a better course. Later, these moral depravities make a lodgment in his brain, in the shape of false reminiscences or spurious images of impossible facts; he mistakes his best friend for his foe; does not feel safe; has seen eyes following him in the night, or a suspicious light cross his room; he heard threats behind him; he knows the fellow, and will break his neck. The next we hear of him he will be in a prison, or insane asylum, or involved by sharpers in a law-suit; to-day he is an imbecile, to-morrow he may be a criminal.

Supposing no omission, here are five classes of persons con-founded with idiots without reason, nor the excuse of neces-

sity. This confusion bears upon their position educationally, socially, and legally.

Four of the five classes above enumerated require, like idiots, the benefit of a physiological education; and as long as there is no provision made, especially for each, their wholesale admission with idiots looks like a matter of course, and is very much so, as far as philanthropy is concerned. Even in respect to education proper, we are inclined to think that the teaching part of the method is calculated to do equal good to those unfortunate children. But all is not teaching in our training. Deeper than the exercises, than the lessons, than the incitations addressed to activity and intelligence, lies the foundation of the work—in the moral training; incessant influence, which is like the spiritual atmosphere of a place of this kind, intended to correspond to the wants, sympathies, and resistances to be encountered in idiots. If we except the backward children, the other classes require different and stronger moral agencies to act upon them; they need a moral training whose character may be defined by establishing its situation midway between that of Leuret for insane, and ours for idiots.

But if these children, uneducable in ordinary schools, and unprovided with special ones, must be, for a time at least, indiscriminately treated with idiots, this necessity does not justify their confusion with them, nor the social indifference. Many of them would improve, many more would not have fallen into bad habits and criminal partnerships, if they had only received the attention bestowed on ordinary children; double dereliction, from which they and society subsequently suffer. In this abandonment the child with insane propensities loses sooner and more completely the balance of his judgment, or the control of his passions; the imbecile familiarizes himself with all sorts of eccentricities of the lowest order; the backward child lapses into the solitary walks of the youth who avoids company, to not be disturbed in his task of self-destruction; and the idiot shuts himself up more and more in his isolation. Hence, by a just return, society is occasionally startled by deeds of horror committed, not so much by these irresponsible beings as by those who neglected their duties towards them. Even now, that State

and National institutions have been founded for the improvement of idiots, these children and the others above enumerated, when sent out from their schools, some imperfectly improved, some very little, some without means of support or of starting in the world, some without friends or family worth claiming, will be exposed to imminent dangers to themselves and others, till asylums shall be provided for their refuge, not so much against their own vices as against the incitations of vicious people.

The legal status of idiots relative to property is that of minors, without reservation or attenuation for the kind, the degree, the stage, the tendency of their infirmity. Cases susceptible of improvement or not, cases of limited but rational understanding, or of unsound reasoning and ungrounded aspirations, are reduced by law to the same present and future incapacity of possession and usage. It seems unjust, now that idiots are improved, can work, spare, behave more or less, to submit them to the same legal incapacities which must rule the maniac who mistakes gold for cinders, and *vice versâ*, or the imbecile ready to make a fortune out of incessant barterings in which he means to cheat, and is himself cheated. The patrimony of the child who may improve at some cost, must not be left without control in the hands of persons interested in keeping him incapable. In England the Sovereign, here the Governor of the State is the guardian of the idiot. Evidently this trust is too distant to be effective. The Governor should delegate his guardianship to the Superintendent of the State institution, who is competent to advise about what might be profitably expended for the improvement of the child, and what part of his property or income may be progressively intrusted to him as a means of learning the management of his worldly affairs. Anything short of this is unjust, and leads to legal spoliation.

Their personal rights are no more respected; though, under the steady improvement of their aspirations idiots are known to have become worthy of the blessings that society offers and religion sanctifies.

Criminal legislation treats idiots yet worse. As we just said, out of their institution nothing prevents them from falling into the snares of bad company but their good natural

tendencies. But, if they succumb, tossed between lawyers who hold them up as the lowest fellows, or the most cunning of criminals, findings and judgments agree in sending them where they cannot improve, but must grow worse. Although any kind of confusion is painful to the mind, one might conceive that the dement might be allowed to rot in the same place of confinement where the maniac raves; but who could see without sorrow the idiot sent, for an unconscious or doubtful crime, where the imbecile finds himself at home among men of his stamp, instead of being sent to the institution where he might be educated, or to an asylum where he might be protected against bad influences, as the case might demand.

We can, therefore, already perceive that social and legal exigencies, and the recent creation of schools for training idiots, naturally lead to the complementary foundation of asylums for such as have no family, or are only partially improved. This asylum shall be a happy home for those who could have no other, if its management be given as a reward to those devoted women and men who have already spent many years and turned white their young hairs at the task of educating idiots; any other persons would perpetuate in the new asylum the hard practices of the *hospices* and the poor-house.

But while we demand more social love, more legal protection, more home comforts for idiots to keep up with the recent improvement, we must not forget that the institutions already founded for them, and the physiological methods of teaching, will shed more lustre on this century than the institutions and methods for teaching deaf mutes did on the last, if we are as conscious of our duties as we are of those of society toward our children. In their name we have asked and received palaces, annuities, and we may even say the incubation of their feeble capacities from hundreds of devoted persons; but are we sure that we have understood our subject in all its grandeur, and kept it on the high philosophical ground upon which it can stand equally the test of criticism and of admiration?

True, idiots have been improved, educated, and even cured; not one in a thousand has been entirely refractory to treat-

ment; not one in a hundred who has not been made more happy and healthy; more than thirty per cent. have been taught to conform to social and moral law and rendered capable of order, of good feeling, and of working like the third of a man; more than forty per cent. have become capable of the ordinary transactions of life under friendly control, of understanding moral and social abstractions, of working like two-thirds of a man; and twenty-five to thirty per cent. come nearer and nearer to the standard of manhood, till some of them will defy the scrutiny of good judges when compared with ordinary young women and men.

But this success, honorable as it is, constitutes only one of the objects to be attained as the honest return due to society for the generous support afforded to those who took charge of the new establishments. If these were founded for idiots, idiots seem permitted to exist and are expensively gathered and treated, not only for their own welfare, but for some social and scientific objects which disclose themselves, when we advance in the road of progress, as so many new duties for us to perform. Among these *raisons d'être* of idiocy, the most urgent, the most neglected arises from the light to be thrown on all the branches of anthropology by sound and complete observations of idiots from the cradle to the slab. But to this day there is not one complete observation followed thus far. This point we must reach. Being given children whose condition prior to birth, in infancy, youth, and manhood is perfectly established; having studied the deficiencies and the disorders of their functions, their intellectual progress and physical development under a physiological training, our love for them and their fellows must follow them with scalpel and microscope beyond life, to mark the peculiarities of their organs as we have done those of their functions. It will be impossible to collect and compare fifty such observations (and that would be about one for each institution) without being surrounded by new light on every important point of human philosophy; not only upon the questions bearing directly on idiocy, but upon all human questions pertaining to causality between organs and functions. These questions vainly asked from commonplace subjects, or from the sick or the insane, will be promptly answered by the comparison of a few mono-

graphs of idiots. That these exceptional children are better subjects, are in fact nearly the only subjects fit for the study of the impending questions of anthropology, will be readily admitted; considering the relative sameness of the organs and of the functions in ordinary subjects; the alteration of organs rarely followed by corresponding alterations of functions in the sick; the functional disorders not often accompanied by alteration of organs in the insane. And on the other hand, considering that idiocy is not an accident like illness or insanity, but a condition of infirmity as settled as other permanent conditions of life; that it presents to our comparison all the elements of a *norma*, whether we analyze the functions, whether we observe the organs; this correlative status of the organs and functions in idiocy is at the same time so certain and so extreme that it affords unequalled data to the student of comparative biology.

Therefore, we set down as one of the most important duties of the new institutions the production of these monographs, which need not be numerous, but perfect. These monographs are our debt of gratitude toward society, which wants them to light her steps onward; toward idiots, who will be benefited by a better comprehension of their condition; and toward the sciences accessory to anthropology, which have never been furnished with so forcible and stable elements of observation of human nature as those accumulated under such circumstances; here, and very likely nowhere else at the present hour, rest the expectations of the inquirer.

But since twenty years, this part of the labor has been left aside for the more urgent object of founding the new institutions on a solid basis. Now everything is ready for the triple work of improving idiots, of studying human nature from its lowest to its highest manifestations; and of testing on idiots the true physiological means of elevating mankind by education, which will be the object of the following pages.

PART II

PHYSIOLOGICAL EDUCATION

Idiots could not be educated by the methods, nor cured by the treatments practised prior to 1837; but most idiots, and children proximate to them, may be relieved in a more or less complete measure of their disabilities by the physiological method of education.

This method, object of the present exposition, consists in the adaptation of the principles of physiology, through physiological means and instruments, to the development of the dynamic, perceptive, reflective and spontaneous functions of youth.

The principles are not the method, the means, and instruments neither; but the co-action of both constitutes the method of education contrived for idiots and already appreciated as "an example worthy of imitation, of the alliance of the moral and physical sciences."*

Therefore, the lessons of the Hospitals of the Incurables and of Bicêtre, of the schools at Boston and Syracuse, have not been given through the idiots in vain. Visitors came in, and every one carried away some of the principles or instruments used there, according to the chances of a daily practice. Seeing this, physicians could no longer write on diseases of children without expatiating on moral or functional treatment, nor teachers go back to their schools without carrying with them some of our sensorial gymnastics, imitation exercises, etc. In all this, truly the idiots were the doctors and the teachers. They taught as much as could be seen and understood in a visit; they taught, besides, that idiots are not the repulsive beings that our neglect made them, and that any land would be blessed where women and men would devote themselves to the task of elevating these unfortunates. Hence, institutions for their education have sprung up everywhere, and the physiological method was scattered piecemeal in every educational establishment.

* Rapport de MM. Serres, Flourens et Pariset, à l'Académie des Sciences. Paris.

This mode of spreading a system, by breaking it up as soon as formed, if not flattering to inventors, seems to be quite a favorite process of civilization. J. R. Pereire, after teaching for forty years the deaf to speak, saw this method reduced to mimic language and mutism. J. J. Rousseau did not hear bestowed upon the writings of J. P. Richter and the school of Pestalozzi, the encomiums deserved by his own Emile. Amoros had hardly given the last touch to his compendium of gymnastics than he saw it broken in fragments by the limited comprehension of his own admirers. Itard had no knowledge of the application of his object-lessons to the Savage of Aveyron by the Home and Colonial Society. Jacotot assisted at the apparent burial of his synthetical teaching of reading by words first, which teaching has been revived so successfully by Dr. Wilbur. So the onward movement takes place, through other oscillatory movements, by ebb and flow; and progress is accomplished even by apparent retrogradation. In this wise the truncated application to public schools of the physiological method of training has made, henceforth, its total application an unavoidable necessity; and its more comprehensive employment in several institutions has enriched it with many new devices, derived from the principle, by practical ingenuity. Though such a transitory season is not very favorable to the reassertion of the fundamental principles, it is the very time when we need it most.

Our method, to be really physiological, must adapt itself in principles as well as in its means and instruments, to the healthy development and usage of the functions, particularly of those of the life of relation: the apposition to be true must leave no gap, suffer no discrepancy. Man being a unit, is artificially analyzed, for study's sake, into his three prominent vital expressions, activity, intelligence, and will. We consider the idiot as a man infirm in the expressions of his trinity; and we understand the method of training idiots, or mankind, as the philosophical agency by which the unity of manhood can be reached as far as practicable in our day, through the trinary analysis.

According to this Trinitarian hypothesis, we shall have to educate the activity, the intelligence, the will, three functions of the unit man, not three entities antagonistic one to the

other. We shall have to educate them, not with a serial object in view (favorite theory of A. Comte), but with a sense of their unity in the one being.

Activity, besides its unconscious and organic functions, divides into contractility and sensibility, with their specific tendencies; Intelligence branches into many sub-functions, and Will into its protean expressions, from love to hatred.

The predominance of any of these functions constitutes a disease; their perversion leads to insanity; their notable deficiency at birth constitutes idiocy, afterwards imbecility, later yet dementia.

Physiological education, including hygienic and moral training, restores the harmony of these functions in the young, as far as practicable, separating them abstractedly, to restore them practically in their unity.

This is the psycho-physiological principle of the method.

Before deducing its applications for the treatment of idiocy, we must see how it may be made available for its prevention.

Like most maladies and infirmities idiocy may, to a great extent, be prevented.

When dependent on local and hereditary causes, the prevention follows, as a matter of course, the avoidance of such conditions. Already, in the Alps, many pregnant women migrate from the valleys to the uplands; the opening of routes in these long secluded localities permits their population to marry outside of their blood-relations, thereby sensibly diminishing cretinism and idiocy.

But idiocy is not all endemic or hereditary. We have seen it creep out from the couch of the young, of the healthy, of the talented, as well as from that of the lowly or of the vicious. Young men and women qualify for all sorts of social and scientific attainments, and disqualify themselves for the task which ranks us with the gods. In one class, the privations are suffered particularly by girls and newly married couples; in other classes stimulants of all kinds are used nearly from infancy, instead of being kept as the solaces of old age. Intellectual or business excitement has taken possession of both sexes; a young woman with child has to contend with social difficulties, as if she were not engaged in a labor which requires all the resources of her constitution, supposing she

has any. These exactions, of food from the ill-fed, of strength from the weak, of innervation from the enervated, in favor of the future being, do not seem rational, and are too often followed by the ruin of the mother's health, and by the moral or physical crippling of her child. How much more sensible it would be for young couples to try to live according to hygienic rules, to keep the pregnant woman in comfortable conditions, without anxiety, with an abundance of substantial food, with air for two, day and night, and with plenty of exercise, sooner than to act as if relying upon the wisdom of the embryo to feed himself out of no food, and to keep himself unmoved amidst the emotions of his mother. This is not to say that idiocy depends exclusively upon voluntary circumstances; some accidents may be prevented, some not. Hereditary affections and nervous disorders transmissible in some mutable form, accessory diseases accompanying pregnancy and destroying the powers of nutrition, such as disordered appetite for unnutritious food and drink, vomiting, costiveness, etc., cannot always be counteracted by professional interference; but in such cases the skill to correct disordered functions, to prevent steady impressions and sudden shocks, is the highest attainment of our art.

The new-born infant escapes the dangers of intro-uterine life, to enter into another crisis of its development. The withering of the cord, and the maturing of the breast, declare the new relations of nutrition between mother and child; but this sudden change is fraught with danger. To this change, and to the transition from a liquid to a gaseous medium, is attributable the loss of substance, of weight, and of caloric, suffered by the child in the first week; deficiency of nutrition from these causes producing convulsions, idiocy, and death. We can prevent these accidents by a proper control over the internal and external means of keeping up the warmth. Besides, at that time, the brain is soft, almost pulpy; has a reddish tint throughout, without well marked differences between the white and grey substance, nor well defined circumvolutions; the nerves only being firmer, the general or tactile sensibility precedes all others. Hence, in early youth, and particularly at the time when the body of the new-born actually loses weight, caloric, and substance, if it takes nour-

ishment, this is mostly applied to the consolidation and distinction of the two substances composing the encephalon. But if this nerve-food is not timely supplied to the infant, it becomes idiotic, epileptic, paralytic, or hydrocephalous, whatever may have been the cause of the deficiency of nutrition.

This effect of the want of nutrition is not peculiar to the nervous system; it rules the growth of all the other systems, and develops nearly all of the constitutional affections of childhood. We can trace the beginning of diseases of the long bones, of the spine, of the circulatory and respiratory apparatus, etc., to that same cause, deficiency of nutrition at the very time when each of these organs required the most effective nourishment. This explains why each of these constitutional alterations must be expected at certain periods of life, idiocy at first, rickets, phthisis next, etc., till dementia and paralysis close the series. Thus, deficiency of nutrition bears alternately upon the apparatus whose growth or temporary activity requires the most nutriment. This law traces our duty to the new-born infant.

The health of the mother, her labors, inactivity, food, drink, aeration, comfort, happiness, having a direct bearing upon the state of her milk, and her milk upon the nutrition of the infant, call our attention before everything else; because, owing to the want of expression of the passive little being in the first weeks of life, irreparable mischief may be worked by bad food, before one could be made aware of it.

Next in importance comes the watching of the deficient abilities of the child, and particularly the distinction of their constitutional and external causes; many infants look like idiots, or bid fair to become such, who are only crippled by something or somebody, and many idiots continue for months their marmot-like life, who are thought only dull babies.

At this stage of life, where all the impotencies of babyhood do not differ from incapacitation by infirmities, the difference may be established only by reference to the age appointed by nature for the evolution of each function. Among the first, extending the arm, opening the hand, grasping, is a series; looking, turning the head upon the axis, raising the spine to the sitting posture, is another; hearing voices, listening to

catch sounds, reproducing them to amuse the organs of audition, is another of the endless groups of capabilities which spring up, one after another, and which are so long or vainly expected from idiots.

Who could watch over the tardy coming of these functions better than a mother, if she were timely advised by a competent physician? The skill of the latter is of no avail without her vigilance, and her zeal may be very blind, even mischievous indeed without his advice; stuttering, squinting, and all sorts of bodily defects, besides the perpetuation of the worst symptoms of early idiocy, are too often due to the want of this concerted action of love and knowledge.

As soon as any function is set down as deficient at its due time of development, the cause must be sought and combated; if external, removed; if seated in the nervous apparatus, counteracted by the earliest course of training and hygienic measures. The arm of the mother or nurse becomes a swing or a supporter; her hand a monitor or a compressor; her eye a stimulant or a director of the distracted look; the cradle is converted into a class-room, gymnasium, etc.

If the features of idiocy are decidedly marked, the mother must often visit with her child the nearest institution, see what is done there to remedy similar cases, and receive the instructions necessary to carry on the same treatment at home. If this prove costly at first, even to the State Institution, it will in the end save the State and families the expense of several years of after-teaching, besides accomplishing more fully the object of the treatment.

In this manner, when the time arrives for admission into the school, the child feels at home among the exercises, pleased by the general activity, music, and amusement of the place; has no resistance nor antipathies to what it has seen from infancy, and cannot fall at its entrance into the position of a stranger, subject to nostalgia and its consequences.

This double and alternate education of the infant-idiot at home and by contact with the school, brings us closer to the method of physiological training.

The child, going through the institution at first on the arm of its mother, soon feels the influence of the general training, even in its apparent inattention, and is thereby better pre-

pared to be individually carried through the same movements. Home again, and in the silence of privacy, the child's attention will be more easily concentrated upon some of the facts or actions whose outlines are yet faintly delineated in its sensorium, at the same time that its resistance to fresh contact is lessened; the double result is new perception and increased spontaneity, oscillatory strides from the general to the special, and *vice versâ*, towards the completion of its perceptive, reflective, and spontaneous faculties.

These alternate reactions of the perceptions on spontaneity, of the will on reflective agencies, is the *modus operandi* of the physiological process of education for idiots, for children, for mankind. They take place in the terminal loops or plexuses which are scattered in the integuments like so many peripheric brains; in the sensorial and motor ganglia; in the intellectual ganglia or hemispheres. Through the conductors of motion and sensation, the central and generalizing organ receives the external impulse, and transmits its orders to each apparatus of action.

This double current forms a functional circle which cannot be interrupted without being destroyed. Take away one of these currents, and instead of causing a complete action, we have only the beginning of one. Whether images are sent from acute senses to an encephalon which cannot register, compare or classify them, or whether centrifugal aspirations cannot be realized by dead or dead-like apparatus of transmission and contact; in both cases, opposite as they are, the result is the same—isolation, incapacitation. So, fine senses and good muscular development, if the will has no command upon them, cannot respectively feel nor do anything more than if they were paralyzed; and leave the child impotent, with all the instruments of potency less the central one. And in the same manner, an active encephalon deprived of important means of communication with the world, or of means of sensorial analysis, may create superficial idiocy, whether the isolation comes from general paralysis, or from the loss of one sense only, or from the loss of several.

Now let teaching do, at large for mankind, what infirmity does for idiots and their congeners; let perceptions be sunk in a central organ unprepared to generalize and fecundate

them; or let the generalizing agent be sent, through its spontaneous impulses to external organs unprepared for movement or for the correct perception of feelings, and the result will be at least a lowering of human capacity; but let idiots be taught by either of these half teachings, through one-half only of the psycho-physiological circulus, and you may well set down their improvement as impossible, since in this wise you want to improve them by the very process which would make them idiots, if they were not such already. This cannot be too much insisted upon, that whatever development be given to the sensorial faculties, the reflective and spontaneous must receive a corresponding culture, and *vice versâ*.

Exclusive memory exercises do not actually improve idiots; rather the reverse: they impede their future progress. Better one thing thoroughly known than a hundred only remembered. Teaching so many facts is not so fruitful as teaching how to find the relations between a single one and its natural properties and connexions.

Conversely, protracted tension of the will and reason upon unsubstantial objects and purposes, if it would be futile in the case of idiots, does favor in other schools the production of monomania and hallucinations, even endemically. The avoidance of these exclusive practices, reduced even into theory by certain teachers, will insure the unity of training so important to our success.

Therefore the teaching of a geometrical point must not make us forgetful of the line to which this point belongs; the line, of the body it limits; the body, of its accessory properties; the properties, of the possible associations of the subject under consideration, with its surroundings: an idea is not an isolated image of one thing, but the representation in a unit of all the facts related to the imaged object.

The completeness of the method to be used is of the utmost importance, and must be enforced as well in regard to the object of the teaching as to the unity of the child. But before beginning our close adaptation of the whole training to the whole child, we must make sure of the fitness of the latter for it. We must not put an idiot to work or to study before ascertaining every morning his condition. A friendly look at his face and a shake of the hand, a patting of the head,

if necessary extended to the temples and posterior base of the cranium, will tell if anything be the matter, and if you have to extend your investigations farther. With idiots the questioning by palpation is the surest; ask the different organs, and they will tell you how the child feels, better than himself, better than his nurse. We must not permit any dejections to go unnoticed, unless we want at some time dysentery and the like to run wild through our wards.

The same attention is required if any inflammation of the eyes appears, possible initiator to purulent conjunctivitis. The spread of any parasitic disease is to be cut short with the same vigilance. The health of the feet and hands has to be often ascertained, particularly in winter.

In dressing the children we must have regard not only to the season, but mostly to the sudden changes of temperature, and to certain idiosyncrasies. Dress them as you like in regard to fashion, but comfortably and easily about the joints and chest, so that they can move and grow.

We must not send a child to study or duty without his having taken food. The staple food for these children is milk, bread, eggs, and ripe, red fruits; meat once a day is enough. But every day or every week brings new demands on account of changes of season and temperature, of personal health, or of imminent epidemics; and also because variety is of itself food.

The nutrition of idiots is to be attended to closely, if we do not want to see them, or part of them, decay.

We must not begin their day's work like a duty, but like a pleasure, with walks, sports, music, and end it in the same manner; so that if we have not made them perfectly happy through our daily routine, we can send them to bed cheerful.

After the morning music, the first labors are those in which the most of attention may be exacted, and true learning gained. At later hours, more is to be derived from excitement than from concentration of mind.

When teaching a new object, we must not too often put our point forward, but on the contrary put it behind something well known, as a corollary to what was previously acquired, an unavoidable deduction, an of course. If we let the child feel that the ground is new, he will recoil; if we do

not, he will think himself on the old one, and go ahead without increased diffidence.

In this direction there is a mark to which we can carry our pupil forward; let us appreciate it. If we leave him below that mark he loses the opportunity to reach it, perhaps forever, dispositions of mind never coming back identical in presence of the same facts; and if we try to push him farther than his attention can support him, the whole acquisition may fall "in a pie." Therefore when any tension of the muscles, senses, or mind has attained its object, let us remove the pressure gently, for fear that a prolonged tightness would undo the deed or deface the impression dearly acquired.

When we exact from a child, in this manner, what he can only do with the help of our physiological artifices, we should study his features and see that he is not overcome instead of being raised by the process; we must beware of protracting the tension till his countenance shall give the signs of mental depression, as knitted brows, blank looks, white circle around the mouth, dejected posture; if we have been so far unmindful in our eagerness, let us hasten to take him off gayly to some pleasant exercises or music, remembering that we were at fault.

Though the idiot has much to learn, new things and studies must be dealt out sparingly to him, taking in consideration for the nature as well as for the quantity of work exacted, the heat, the cold, the dampness, all external reagents on the nervous system. Spring and fall are the times to push a child forward; winter and summer to inure him to excesses of temperature.

Let it be one of our first duties to correct the automatic motions, and supply the deficiencies of the muscular apparatus; otherwise, how could we expect to ripen a crop of intellectual faculties on a field obstructed by disordered functions.

We must teach every day the nearest thing to that which each child knows or can know.

We must never confide to automatic memory what can be learned by comparison, nor teach a thing without its natural correlations and generalizations; otherwise we give a false or incomplete idea, or none, but a dry notion with a name; what enters the mind alone, dies in it alone; loneliness does

not germinate anything. The contact of two perceptions produces an idea; the contact of a perception with an idea produces a deductive idea; the contact of two or more ideas with each other gives rise to both induction and deduction, and ideas of an abstract order.

Contrast is a power; children will understand, and do by apposition of differences what they could not by single presentation, or by apposition of similarities. In other cases, the reverse proves successful; similarity is a power, too.

We must make the contrast not only an instrument of learning, but one of rest and repose. To that effect, things dissimilar are to be taught in apposition; an exercise through the eye, to be followed by one through the fingers; sitting, by standing; attentive silence, by emission of voice; doing this we give food to the mind as well as rest by variety, if our variety has a physiological and intellectual meaning.

Repetitions please children; as rhythm and rhyme are the lullaby of nations we must take advantage of them in teaching the speech and in the general training.

Training is understood to be special and general.

1st, In relation to the matters learned; 2d, to the number of children taught; they must alternate. An exercise of analysis is followed by one of synthesis, an individual teaching is followed by a group teaching. The same thing has to pass by the double process of teaching, as the same child has to pass through the single and group learning: Everything taught and every function trained by impression and by expression. In this manner, what has come into the mind has to come out of the mind, and what was perceived by the attention of one isolated child, has to be expressed through the impulse of a whole group by those composing it. The general impulse gives a better comprehension to the individual, the individual comprehension gives a stronger impulse to the spontaneity of the groups.

For the same purpose children have to be as soon as practicable taught and teachers alternately; not for the value of what they teach (though children often make children understand better than we can), but because the child employed to teach another learns more himself than his would-be pupil,

as well upon matters of fact as by exercising his nascent power of command.

Our instruments of teaching must be those which go directly to the point. In view of that necessity, we must use object pictures, photographs, cards, patterns, figures, wax, clay, scissors, compasses, glasses, pencils, colors, even books.

Let us carry all our exercises through pure air, and never command in-doors what can be accomplished without.

We must not forget to create gaiety and mirth several times a day; happiness is our object as much, nay, more than progress, and children will not be sick if they laugh.

We reserve for another part the exposition of the principles involved in the moral training; it would be more philosophical to emit the whole of them at once, but for the sake of clearness we divide once more in theory what must be a unit in practice, the physiological training.

Training and education begin where previous functions and acquirements ceased. The beginning of the treatment of each child is where his natural progress stood still; so many children, so many beginnings. For every function or capacity the start varies as much. Such a child uses one series of organs to a certain extent, and other series to a lower or higher point. One child is forward in talking, and backward in the use of his sight; another forward in imitation, and backward in comparison, etc., etc. From these discrepancies in the range of the diverse functions in different individuals, result the necessity of presenting the means and instruments employed in improving so many backward functions, as if all the anomalies belonging to idiocy and its congeners could really be in improving so many backward functions, as if all the anomalies belonging to idiocy and its congeners could really be found to the same degree in all idiots. The mind of the reader can easily make its way through the fallacies of this unavoidable generalization.

Our system of education is the process of accumulating in children strength and knowledge; to create in men power and goodness.

The first want of a people and of an individual is strength acquired by proper training of their muscular system. The nations that flourished did so after or during long exertions,

whilst, on the other hand, the clans that decayed by cretinism or otherwise, were shut up in inaccessible valleys. Of all the incapacities of idiocy, none are so striking and none so detrimental as those which affect motion and locomotion; their direct effect being to prevent the development of force, their secondary result to prevent the reaching of any instrument of knowledge.

The deficiencies and the anomalies of motion are extremely varied in idiots, from nearly absolute immobility to the inefficiency of the extremity of the fingers, or to a slight swinging of the body in walk or station. Both deficiencies and anomalies, deep or superficial, are the subjects of the education of the muscular system.

(We warn the reader, for the last time, against the fallacy of the words we employ, because they are not adequate in comprehension to our meaning. Here, for instance, it is impossible to take hold of the muscular apparatus without acting on the nerves, bones, etc., as it is equally impossible to command these special instruments of activity without exercising besides a reflex action on the intellect and on the will. Therefore it shall be understood that we mean only that our action shall be mostly aimed at one set of organs—for instance, those of motility now. So much for our infirmity of expression.)

Our Gymnasium differs from the ordinary one in its general object, being intended to create an equilibrium of the functions, not by the towering of the muscular above the other systems, but, on the contrary, by paying more attention to the nervous, as being the most shattered in idiocy. But even with these reservations in favor of the general training, we confide mostly in the exercises borrowed from the daily labors and amusements common to all children. The spade, the wheelbarrow, the watering-pot, the bow, the wooden-horse, the hammer, the ball, are greater favorites with us than the general gymnastics whose instruments are to be employed sparingly, and whose tendencies to exaggeration are to be avoided. The Grecians were using it to excess, for which Plato reprimands them, as well as for the other excesses in over-cultivating the intellectual faculties—the former making

prize-fighters, the latter sophists. Nothing is so much to be discountenanced as this one-sided education.

In our case no excuse could be proffered to palliate a similar mistake, because we aim at a plain, comprehensive, harmonious training of the whole child. Our gymnastics, in its generality, is simple, managed with few instruments, and mostly of the kind which received, several years after it was adapted to idiots, the pretty name of *Calisthenics*, under which it entered the fashionable academies. Our special gymnastics is by far more important, on account of its adaptation to the deficiencies of functions and of organs, by the correction of which it touches to orthopedy, and to orthophreny. Though the instruments of both these gymnastics are few and unostentatious, whilst our intellectual means of exercise are many, that disproportion is right, and pleases us as precisely representing the proportion of the elements of muscular training necessary for our main object, the intellectualization of the muscles.

The absolute or complete abolition of the movements of relation dependent on the absence of the impulse of the encephalon, and leaving to the idiot only the involuntary contractions of organic life, dependent on good spinal and sympathetic system, must not be hastily attributed to paralysis. No doubt there are idiots paralyzed, but their immobility is more a cause than an effect of idiocy. On the contrary, the incapacity of movement here considered is a psycho-physiological phenomenon, whose incomplete analogue is found in the condition of a child who, having been kept in bed for months, tries to walk. He attempts to transmit the orders of his will to the distant organs of locomotion, but in vain, till his mother forwards his foot and teaches the nerves and muscles the lost art of walking. The idiot does not learn to walk so fast as this convalescent child, for several reasons: He never did walk; his immobility has lasted all his life instead of a few months, and we must create in him the desire that he never had of walking; and second, his will, far from being ready to command anything, has never yet suspected nor tried its wonderful powers.

Infantile paralysis, even complicated with extensive contractures and chorea, as it is often, is not necessarily beyond

the resources of our art. As means of treatment we would suggest general and special nutrition of the affected limbs, general and special excitors of heat and electricity, general and special gymnastics, sea-bathing, shampooing, kneading the parts, commanding, exacting the movements, and a few select medicinal agents unnecessary to suggest to confrères.

We meet more frequently with the partial loss of movement expressed by the fixedness of the child where and as he is placed, standing, lying, seated any way, or by the impossibility of his hands taking hold of anything, even carrying food to the mouth; he is immovable of his own will, movable only by another's as by an external spring.

This relative immovability of the idiot, of the demented, too, the result of inertia, has no parentage whatever with the immobility by which a man or an animal assembles his forces to throw them into action; this is a positive, the other a negative attitude. From positive immobility springs an active determination; in negative immovability resides the power to nearly neutralize any external inducement or any internal motive to action. This immovability is therefore the first expression we meet with of the radical elements of idiocy, the negative will. Henceforth we shall find many and the most varied incapacities, all doubled, made nearly indomitable by the silent protean "I will not" of the negative will. Impossible now to forget it, and whenever found it has to be treated, as we will do presently, where it would perpetuate, with incapacity of motion, the whole train of idiocy.

But we are often prevented from at once overcoming this obstacle by the interposition of another already mentioned, under the head of automatic, mechanical or spasmodic motions. As long as these motions exist with or without negative immobility of the rest of the body, we cannot expect to see the child improve in willed action nor in active immobility; therefore it is our duty to try to overcome it all at once when we can, or as soon as possible.

These anomalous movements have their seat, not always, but mostly in the wrist and fingers. We have described their various characters, and shall say no more here than is necessary to the rationale of their treatment. In automatic movements, the child uses one part of himself, one finger or one

eye, as if it were an automaton whose recurrent movements produced his beatitude. In mechanical movements the child uses, besides paper, thread, metals, anything whose breaking, touching, ringing, pleases exclusively one of his senses; not the best—on the contrary, the most diseased. In spasmodic movements the child has no object, or if he has any, such as striking something or at somebody, it is prompted by a blind, sickly impulse.

Each of these movements is best combated by exercises which offer the strongest contrast to the bad habit. Automatism is best done away with by constant employment of the general forces; mechanism, by the intelligent occupation of the delinquent parts and the avoidance of the things worked at mechanically; spasmodism, by raising obstacles, the painful contact of which will cause recollections sufficient to prevent its recurrence. But if each of these disorders of contractility recedes before the employment of particular means, they disappear only under its steady continuance corroborated by the long application of moral training. Nevertheless, we must expect, and may reasonably promise to cure the mechanical sooner than the automatic or spasmodic motions: the latter being generally subordinate to an accessory disease, variation of the choreic type.

Happily the exercises undertaken in view of destroying the disordered motions, may be at the same time calculated to promote willed immobility and orderly movements; consequently, both objects may be attained at once, and described at the same time.

Setting aside these muscular disorders we find ourselves in presence of the whole cortège of muscular incapacities incumbent on idiocy, every one of them presenting its claim to our care as foremost. Attending to one would be as neglecting the others, or like treating one symptom to the exclusion of others, disregarding the disease itself in its unity. In our case, for instance, every particular incapacity of the legs, fingers, etc., is subordinate to the impotence of the general activity; we will not, therefore, pause on the threshold to look at the inefficiency of a single part, but consider the incapacity of the whole motor function.

Muscular activity is a function accomplished by the contraction and relaxation of the muscular elements; movement taking its fulcrum in immobility. Therefore, before and simultaneously with, directing the training towards the acquisition of some special movement, we must accumulate its greater energy in view of the concentration of activity into positive immobility, wherefrom all action springs. Immobility is taught in various attitudes—standing, sitting, reclining one way or another, on some gymnastic apparatus, with the rifle, the dumb-bells, the balancing-pole, etc., according to the obstacles which are to be encountered, and the various stages of the training; example:

If the immobility of the whole child cannot be enforced at once, we may seat him before us, half mastering his legs between our knees, concentrate all our attention upon the hands, and eventually upon the one most affected. To accomplish our object we put the quietest hand on the corresponding knee, whilst we load the delinquent hand with a heavy dumb-bell. Useless to say that he does not take hold of it and tries to disengage his hand; but our fingers keep his so bound around the neck of the dumb-bell that he does not succeed. On the contrary, we take care to let the weight fall more on his hand than on ours; if he does not carry it, he supports it at least. Supporting the burden, the more he moves to remove it the more he feels it; and partly to escape the increase of the burden, partly by fatigue, his loaded hand becomes still; that stillness was precisely our object.

When we find that hand temporarily subdued, we relieve it from the dumb-bell, and venture to set it free opposite the other hand, and to maintain it motionless by the combined action of our voice, looks, and gesture. After a few such sessions of alternate loading and resting we generally succeed in keeping the hand quiet enough for the simplest employment; if not, by looking carefully, we will find that the remaining impediment to the usefulness of the limb lies in some extra delicacy of the sense of touch, which happily may be blunted by the use of the balancing-pole and a series of exercises of resistance; but this is part of the sensorial training. The case presented here is one in which partial immobility was the prominent aim; conversely in another

case, immobility shall be secondary, and movement the principal object, as when we keep the whole body quite motionless to concentrate the attention upon delicate exercises of a single part. But we cannot forget that our final object is to teach complete immobility; and to come to it no pains, no time must be spared, because our reward will be the harmony and usefulness of all the subsequent movements.

As immobility is in nature the fulcrum of movement, so in our training it will precede and close every exercise, and serve as transition and as repose between the various modes of active training; so, at this very juncture, the child will be submitted simultaneously to passive exercises, to intrinsic and relative immobility and to movements necessary to learn walking, all of them transitions and reposes coming alternately.

If we take the child so low that he cannot and will not move, seated like an inert mass upon his chair, we must move him ourselves. To that effect we employ instruments of passive exercise, which act on activity nearly like personal impulses. The legs do not bend, we make them yield under the elasticity of a baby-jumper; the feet do not come forward for the walk, let them encounter with the regularity of a walk a spring-board, which receives and sends them back like an intelligent, indefatigable ground would do. Kneading the muscles, handling the articulations, moving with the floor of a tread-mill, and like appliances, will give the pupil the muscular strength to walk; but he will not walk yet, and we make him resume in immobility the seated posture a little longer.

But, after all our passive exercises, he cannot yet stand erect and ready for a walk on a level floor. Then we raise him on two blocks or steps as narrow as his feet, and even we let him fall, being at hand to prevent an injury, but not to blunt the emotion, and to restore him, if needed, to his up-isolation. There he must stand and stand firmly too, having to react with an energy unknown to himself against the vacuum around, which invites him to a fall. To resist the attraction of the void, he must strain his muscles in readiness for any emergency; he is anxious, he does not know exactly why, nor what to do, nor what not to do; but his strength is gathered, and if we have in front of him some

other steps, and if we help him a little with our hand or finger at first, he will try, in the prospect of escaping the isolation, to pass one foot on the next step, on another, and on another, anxious, crying, but walking in fact for the first time. Left on a floor, he would have slid his feet very likely, but not walked all his life. He walks now, but with a swinging of the body, owing to the incapacity of the hands.

Prior to any education, the hands hang like impediments, if not brandished upwards by automatism, impressing their disharmony upon the rest of the body. This being almost always the case with our children, we cannot improve their walk or station without improving their hands and arms, at least as instruments of equilibrium. Here, once more, we must do two things at a time if we want to succeed in one. This improvement of the hands and arms as adjuvants to the general equilibrium of the body, is accomplished by the exercises which improve them for their direct functions, and which will be treated of hereafter. When this is done, we have brought these organs to the fulfilment of their simplest functions, and we are now called to bring the function to the point where it becomes a capacity, being governed by comparisons and reasonings.

When both walk and equilibrium are acquired, but imperfectly, the movements of progression are yet found counteracted by lateral swinging, which gives to the walk of an idiot its peculiar character; this is the point where we find the majority of them; this is the walk which bespeaks idiocy; this betraying incapacity deserves and costs a great deal of attention. The walk of the legs and the equilibrium through the arms have to undergo corrections alternately, alone and together; one first and foremost to-day, the other preëminently to-morrow. Here two kinds of exercises are indicated: first, those which bear upon the legs, and those that bear upon the arms; secondly, those that harmonize the complete functions. Among the first acting on the legs are the stairs of various grades, and the horizontal ladder between the rounds of which the child has to walk. Acting on the arms are the dumb-bells, the Swedish or other clubs, and the various extensions of the arm, which is of itself a natural balancing-pole. The second is composed of the aggregation on a small space, like a room

or a piece of shaded turf, of all the planes, horizontal, inclined in the four directions, abruptly cut, rough, stony, slippery, narrow, etc., which could present themselves as ordinary impediments to regular progression. The child must go through these difficulties with or without dumb-bells, steadily commanded, or urged by the excitement of music.

Besides, rooms are to be extemporaneously prepared, in which we have foot-prints or forms spread on the floor; some near, some far apart; some with the point turned in, and some out; winding in some unexpected way, that the child has to follow, covering exactly with his feet the forms spread before him. The act of directing each foot on each form is one of the best exercises for limbs which have previously escaped all control; but what a superior exercise it is for the head above, which has never suspected its regulating power: to walk among so many difficulties is to think.

A child has to go through many impediments of the kind, some easy enough, some difficult to overcome, representing not only to the legs, but to the mind, so many intellectual problems, so that to go through this series of obstacles, is to go through a complete practical treatise on the physiology of walking and standing. When the pupil has overcome individually these difficulties, with all his attention helped by all the energy of the teacher, he may be allowed to repeat these lessons, but not by memory alone. He is to be thrown in a stream of children who execute the same exercises on a large scale, with the excitement of example and music; and the previous tears are dried, tumbles are laughed at, torpor disappears before emulation, timorousness before charming little braveries; the first rays of promise have pierced through the darkness of idiocy. These children could not move of late, and to-day they are in their first well-earned perspiration; do not let them catch cold, particularly in the moral sense.

Now our pupil can stand, walk, and move, to a certain extent in conformity with the physiology of his organs, provided he is willing to do it. But no; he does these things when compelled or bidden, and almost never of his own impulse. Here, consequently, we see laid bare in him the antagonism between his negative or collapsed will, and the synergic will wherefrom all action derives. This part of the education

is exposed in the moral training, and cannot be explained over each time that it is an adjuvant to any special exercise. Suffice it to say, that as long as his will fails him, our own will must take its place and carry him through walks and other performances of muscular activity.

To resume this period, all that belongs to the function of locomotion requires to be treated with the greatest attention, and subjected to the minutest analysis, as hardly second in importance to the functions of the upper extremity, for the steadiness of the foot is the basis of the steadiness of the body and of the accuracy of the hand. The same care should precede and accompany our efforts at educating the latter.

When we come to consider the hand in idiots as an instrument of function, we are not more struck with its physiological disorders or deficiencies than with the almost universal anomalies of the organ; hands too short and clumsy, or spindle-shaped; fingers truncated, with unfinished nails, or thin and glossy, like quills, with pearly little nails; articulations so stiff that they can hardly be moved, or so loose that they cannot be fixed; tissues bloodless or darkened with stagnant blood; and there are so few exceptions to these extremes that we cannot avoid confessing the marvelous harmony of both physiological and organic disorders. This hand, stiff or relaxed, shaken with automatism or soaked in saliva, must be constantly present to our sight, as it will become henceforth an object of solicitude and study.

If any part of us challenges a definition it is the hand, its excellences being so many that a single definition cannot comprehend them all. The definition of De Blainville, "a compass with five branches," justly elicits the admiration of the geometrician; ours, not so dazzling, will come nearer to our object—the hand is the organ of prehension. Its incapacity puts a barrier between the idiot and everything to be acquired. Without further explanation, we will try to carry the hand from its incapacity in idiocy to its full capacity when improved by education. But this last view of the hand is too broad yet; and we shall be contented for the present with improving its powers only of prehension.

When we say prehension, we mean the complex action of taking, keeping, losing hold; otherwise, to seize, hold, and to

let go: those three terms are the beginning, the object, and the end of the act of prehension. This act, so simple for us in its trilogy, is either impossible to or incidentally performed by the idiot. It requires for its mere material accomplishment the concurrence of contractile nervous and willed functions. This concurrence, far above the understanding of many men, is certainly above the average ability of our pupils, who, far from entering willingly, as the occasion offers, into new contacts, find in themselves more energy to avoid than would be necessary to meet them. Considering the gravity of this infirmity, as shutting the being out from any intercourse and creating the most positive isolation, the task of teaching prehension can never be commenced too soon. Even the impossibility of standing on the feet must not be a cause to delay the improvement of the hands, since we see babies seize with their contracted fingers before they can use their feet to stand.

When the idiot cannot, or will not, use his hands, he is put in front of an inclined ladder, his feet on a round, his hands on another, which generally he will not grasp. Supposing the worst to be the case the child's equilibrium is soon lost; he falls as low as the teacher thinks proper, since he has a good hold of him by the ring of his gymnastic belt. Then he replaces the child on the ladder and allows him again to fall, till the child, understanding better, and feeling where more comfort may be found, holds on with his hands. If he protracts his resistance too long (and it goes too far if protracted farther than the time required to get acquainted with the various parts of the apparatus), a stop may be put to it by transferring the child to the perpendicular ladder, he being on one side, the teacher on the other, and a sufficient pressure exerted by the teacher's hands upon those of the child to prevent his throwing himself down, and to make him support his own weight.

When this, which cannot yet be called prehension, is accomplished without too much of struggle, the child is put behind the inclined ladder and made to grasp one of the highest rounds; his teacher standing in front of the same, presses his hands with his own to make sure that they will not let go. A reliable hold being had in this way, the teacher

passes one foot behind the ladder, with which he pushes out the feet of the child from the round supporting them. Against this the child protests, and to diminish the pressure on his hands, tries to regain with his feet the lost round from which the teacher keeps them away; the more spirited is the contest, the more promising is the result.

Nevertheless, long before exhaustion could ensue, the teacher takes away one of his own hands, and passes it rapidly on the other side of the ladder where it finds the hand of the child loosened and moving about, not knowing what to do with itself. What to do, is to take hold of the next lower round. The hand is directed to it. This new hold is not as heavy as the first one, and offering a sort of security and repose, the child takes it; if not, some assistant holds his hand upon it, till the teacher can secure it himself. Then the other hand of the teacher lets the other hand of the child go in the same manner, and makes it take a new and lower hold, in the way already described. So child and teacher descend slowly the ladder, the pressure of one supplying and teaching prehension to the other, the weight of the child behind, the direction of the teacher in front, the pressure on the hands above, the repulse of the feet below, and lower down the fear of a fall; such are the combined inducements to an early though unwilling prehension. Such and similar means will soon render a child capable of grasping at something, at least to prevent a fall.

This frightened grasp must be instantly used to take hold of, and carry things, for a less instinctive purpose; because when a function has been exercised for some time without object, the child has received from it an impression exclusive of any attribute and usage; it is not only for him a useless function, but one whose later intellectualization becomes next to impossible. For this practical consideration, as soon as a function begins to be accomplished mechanically, we set it in action for purposes and objects more and more intellectual, trying to leave no gap in the series of progress till the function is thoroughly elevated to the rank of a capacity. Now for the application of this principle to our present case. The child comes from behind the ladder where he began, under the uniform pressure of our hands, to exercise the same

pressure with his own against the rounds, and to seize orprehend, without much knowing why, unless for fear of a fall. We study him after coming from that ladder; he is seated, or standing, or sitting piteously enough, looking at his hands slightly bruised, and heated by the process they have gone through. Do we intend to leave him there under such an impression? If we do, he will present more resistance to our next trial, and will not be blamable for it; for so far, we have taught him less how to prehend with his hands than how much to apprehend with his mind instructed by the sight and touch, the next similar painful contact; in fact, we have created less positive power than negative resistance to the series of manual experiments in which he was entering. On the contrary, on taking our child down from the ladder we do not leave him time to look at his hands, but extending them horizontally, we put on each a bright apple. He, partly to feel the coolness on all the burning surfaces, partly not to let the apples fall, will contract his fingers and get a circular, equable, willed prehension of them; quite a progress on the passive contraction of the hands on the ladder's round. The apples are used when they can be had. In summer large balls of crystal would be cooler and more pleasant if possible. The fall of currants, grapes, or cherries in the hand would produce a similar derivation of feeling by contrast; circumstances dictate the choice of these means. As for the object, pleasure confirms the first consciousness of prehension gotten by force, and opens the organ to any unexpected perceptions; preparing the hand, so to speak, to think and to foresee for itself.

Now that we have obtained from the ladder the good it can give in the way of creating the grasp and of forcing to strenuous or lasting prehension, we may as well warn against its inconvenience when employed too long or too exclusively. If used to excess, it elevates or rounds the shoulders; it stiffens the joints, particularly the small ones; and unfits the hand for light and quick work. Therefore, to strengthen the prehensive power we must use, concurrently with the ladder, some other exercise, such as the balancing-pole, whose action is so rapid, and may be rendered quite energetic. But to react against any stiffness produced by the ladder, when the child

comes to it, we must put him to some brisk exercise of the hands like those described farther on, to promote the faculty of imitation. From a heavy prehension, the child must pass to a light one; from a long one to a short one; and we must remember and apply the principle, to teach the prehension of bodies of every form and weight in its three modes—seizing, keeping hold of, and letting go.

The hand is to be trained for years in these abilities, not so much with extraordinary apparatuses as with things ordinarily used in daily life. This training transforms in due season part of formal prehension into easy handling. As this extension of ability of the hand comes little by little, its importance may be overlooked, and even its acquisition neglected; but this ignorant neglect would cost, after a while, an immense range of capacity; let us see.

Weprehend everything about in the same manner, but we certainly handle everything in a special manner, a glass, an axe, a pen, a spade, etc.; prehension is more physical, handling more intellectual; prehending done passively has only one object, obedience; or done actively, is for the direct use of the child; but handling is, we may say, always a willed action having reference to things, to persons, to feelings, and to combinations of these innumerable.

As soon as an idiot begins to prehend and to handle, he must be made to work. When we impose this rule we know what obstacles are to be encountered. His hand is clumsy and weak yet, his movements have no regularity nor steadiness, his mind does not offer to the organ of execution any object worth doing, and what he begins under our orders he drops through unwillingness. Even when his will begins to harmonize with ours in any undertaking, his synergy is soon exhausted, and as a sign of his weakness we may see his forehead or hand becoming covered with heavy drops of perspiration at the beginning of a thought or of an action. This must not deter us from our final object; the more difficult it is, the sooner and the oftener must we go at it; the simplest work, the easiest and lightest thing done steadily by repetition or imitation, is better than nothing; the girl who begins to wipe the dishes, the boy who picks up the

stones in the field, are above all helping to save themselves from the horrors of idiocy.

The hand is the best servant of man; the best instrument of work; the best translator of thoughts; the most skillful hand is yet, in respect to certain realizations, as it were idiotic; our own hand shrivels before we suspect the thousands of ideas which it might realize.

But teaching the idiot's hands to work is different from commanding ordinary ones. The prehension and the easy handling of objects effect a few labors; a third element is to be introduced, the aggressive power of the hand over the substances to be worked—power whose use is entirely repugnant to the inoffensive nature of most idiots. This most important use of the hand, its aggressive capacity, is generally assisted by adjuvant instruments. It alters the surrounding bodies into likenesses of some ideal, which must preëxist in the mind; it consequently transmutes what is a mode of thinking into a mode of being; it works equally the ever similar wooden doll of the Crétin of the Alps, and the latest improvement in steam or electricity.

The hand displaces and combines objects by prehension; it acts on the surfaces as in polishing, drying, etc., by handling; it acts on the substances proper, as in carving, cutting, hammering, piercing, by aggression.

The practice of treating idiots will show what distance separates these works, what capacities each kind of labor requires; and particularly how the slow and difficult introduction of the child into the class of aggressive works will develop in him steadiness, will, and power, the very qualities most antagonistic to idiocy.

The necessity of working with the hand is urged even upon higher grounds than mere physical or intellectual advantages. Even things being otherwise equal (but things are far from being so, most of the time), the working man is, as such, superior to the idle one: idiots, in particular, are soon morally improved by working. Work every day is prescribed according to their ability, here, once for all, no matter if its products be desultory.

The importance of this subject, conclusion of all the efforts at training the organs of movement, must not make us forget

that we have left some anomalies unspoken of, and our few instruments of special gymnastics undescribed.

Shoulders rounded by dejection, crooked sternums, concave clavicles, narrow chests, vicious structures, diminishing the capacity of the lungs for respiration, or of the heart for circulation; curved spines, inequality of strength and structure of the two sides of the body, and similar offsprings of the incapacity of idiots for movement, are treated successfully with our gymnastic instruments, and particularly on the Back-board.

This board is ten inches wide, as long as convenient to stand inclined against a wall like a ladder, and armed with rounds which project laterally by pairs, ten inches apart; it looks like a centipede. The child lies with his back on the board, raises his arms to seize two rounds, and raises his feet from the ground to the first ones below. From this step he is enabled to reach with his hands higher rounds, coming up alternately with his feet, then with his hands, till these reach the top of the board. There he is allowed a little rest, as well to repose himself as to appreciate the novel mode of ascension, the distance from the soil, the look of everything seen for the first time from so high, and to be refreshed from past emotions, so that he can stand what will come next.

Next is the necessity of coming down. To that effect, we tell him to hold on well with his hands, or if we suspect any incapacity or unwillingness to do it, we send somebody up behind the board, whose hands shall press enough on his not to let him fall. At the same time we rapidly bring his two feet from their respective rounds to the centre of the board, slightly adducting the legs and extending the feet. This done with a sensible, not strong jerk, and bearing with a mathematical equality on both sides, we replace, if necessary, the spine on the vertical line, and every organ right and left of it, in their normal relations: no room for shortness, none for weakness; every part must bear its part, play its *rôle*, keeps its place. Thus have we seen the most shocking differences between shoulders, deviations, already sensible of the spine, shortness of one limb, disappear under the uniform action of this equalizer, the Back-board.

The swing acting against a spring-board, that we have had occasion to mention as an instrument of passive exercise, becomes one of positive activity if a rope passed through a pulley be put in the hands of the child to pull himself with. We set him in motion, and he alone, or under our sight, or our immediate command, has to continue the motion by drawing on the rope. This apparatus, when properly built, and with the spring-board easily brought into different positions to suit different sized children, is made to be alternately an instrument of passive, or of spontaneous, or of continuous action for strengthening the arms, neck, spine, and legs. It is equally adapted to destroy some nervous sensibilities of the hand, and more commonly of the foot. This latter organ in particular is sometimes so delicate as to avoid the slightest contact, and to refuse even to touch the floor to walk. The repeated push and repulse of the spring-board so on do away with these abnormal feelings. The foot recovers its firmness, and endurance of rude contacts; first qualities for the walk.

The ordinary swing is dangerous as a depressor of the nervous system, and consequently more greedily wished for by those children it injures the most. Ours differs in two essential elements from this; it has a point of contact on the spring-board, by which the motor powers of the child are constantly aroused instead of being lulled into sleeping indolence; and it is set and kept in motion by the child himself, who exercises thus his chest and arms incessantly, instead of reclining in a useless posture. It is difficult to imagine two apparatuses of the same name so nearly alike, yet so opposite in their physiological attainments, as the air-swing of the yards, and the spring-swing of the idiot gymnasium. The former gives lulling, enervating sensations; the latter brings on healthy contractions, and binds the unwilling to unavoidable activity. The dumb-bells are rarely used for idiots as for ordinary children, as instruments to give a momentum to an automatic balancing. Automatism in any form need not be favored in them; but dumb-bells are instrumental in many exercises, the purpose of which deserve at least a hasty notice.

They are used physiologically, as we have seen, to regulate the general equilibrium in station, immobility, walk, jumps, going up and down stairs, etc.; to bring their momentum to

bear on the shorter or weaker lever when one side is different from the other; to give regularity to irregular movements, and even to carry and absorb the automatic deviations of gestures into their normal movements; to teach how to take hold and to let go; to teach to obey commands with both sides or only one; to impress the mind with the ponderable qualities of matter, each time they are taken and abandoned; to realize through the muscles, by the same alternative burdening and discharging, the rapidity and reality of orders.

The dumb-bells act on the mind as much as on the legs, spine, neck, shoulders, arms, and hands. We find bricks of greater advantage to strengthening the phalanges of the fingers, and to improve the grasp. A prolonged exercise with the dumb-bells is liable to stiffen the fingers, but they are handy for group exercises. Of late Swedish clubs have been substituted for them and do very well, besides their more showy appearance. In individual exercises they have no advantage over the dumb-bells; in group exercises they make a different sight, and could not well be dispensed with, where introduced by way of variety and elegance. Moreover, these clubs are not as heavy as iron dumb-bells; it is true that we have the latter of wood also. Nevertheless, "*abondance de bien ne nuit pas,*" and change pleases idiots as well as any of us.

To give the fingers nearly all their strong qualities, not the delicate ones, we use the balancing-pole already mentioned, but not described. It is a round stick of hickory, three and a half to four feet long, armed at both ends with wooden balls which render it very springy. It is thrown from our hands into those of the child, who sends it back, receives it again, and so on with progressive force and rapidity, from increased distances.

This is sooner said than done. The truth is, that some idiots offer to it a resistance next to insuperable; however, this exercise is of such importance, that the negation of the child has to make room for our will. If he runs away from the coming pole, we put his back to the wall, or his feet on two high steps; if his hands remain closed when the stick comes to them, somebody from behind has to hold them open, thumbs up, and to shut them when the stick is received. The same help is required to throw off the pole out of the hands which receive it unwillingly, and which do not want to throw it now. These

helping hands which do the receiving and the sending, for and through the rebellious hands of the child, must be very delicate indeed to feel at each stroke how much of the child's action begins to take an instinctive or initiative part in their own action; and to calculate, consequently, how much of the next movement can be left to be accomplished by the spontaneous action of the child.

So the simple action of receiving and throwing a stick requires at first not only three pairs of hands to accomplish it, but is to be analyzed and divided into so many parts of action, less and less from us, more and more from the child, that no language, descriptive or scientific, could give an idea of the many steps in this work, till he, half impatient, half knowing, throws the stick with a willed jerk in advance of our help, then we have succeeded.

It will be unnecessary to describe again this exercise when speaking of it as the best gymnastic for a wandering sight. The need of following the stick in its forward and backward moves renders it especially useful when we want to educate the look. Its usefulness will be equally paramount when the hands, narrow-shaped, and the fingers, dry and glossy, can bear no contact but that of saliva or of a few things selected for their peculiar softness. It blunts the hyperæsthesia; under its action the hands soon resume their normal touch, and we shall be happy to find the balancing-pole again when treating the anomalies of the senses.

The application of these instruments of special gymnastics has brought us insensibly from the feet, legs, body, to shoulders, arms, wrists, hands, and finally to the extreme phalanges of the fingers, where lie in apparent confusion the powers of prehension and of feeling, of selection and of rejection.

When educating the hand toprehend and reject with the balancing-pole, we had occasion for the remark that this instrument was training the hand to rough, not to delicate contacts. The fact is, that unless unskilfully handled, it falls on the palms of the hands, whose muscular thickness is well fitted for its rough usage, whilst, if it falls on the pulp of the fingers, an exquisite pain indicates that this soft part is reserved for more delicate perceptions. This delicate tactile power shall hereafter be the subject of sensorial training; but presently the

exercising of delicate prehension, in its three forms above explained, will close the actual series of special motility.

It seems that the smaller the organ, the more complex are its functions; at least the many ways of using the extremities of the hands, which are so complex in prehending, handling, modifying everything, justify this remark, and explain why more time more care, more instruments, more ingenuities have to be spent during many years, with the sole object of giving skill to the fingers. We need not enumerate all the things which have been used for that purpose, but will point out a few of those which are truly physiological in their perfect adaptation to some deficient function of the hand.

The blocks shaped like dominoes, with their dimensions well defined, are laid superposed, combined together, to give firmness to the handling. Other blocks, like those used in building or other combinations, will do.

The nail-board is pierced with holes fitting exactly some nails that the child has put in, then take out, exercising his hand to precision.

The adaptation of geometrical figures to their respective hollow forms.

The raising, with the fingers from a smooth table, of collections of minute articles, such as beads, pins, thin pasteboard, patterns, coins, wafers, etc.

The winding up of cords of various sizes, and the pulling of ropes.

The pressure on some mechanism to produce pleasant sounds or sights.

The buttoning and unbuttoning, lacing and unlacing; the threading of beads, etc. These exercises, and many more such, are well calculated to adapt the child's fingers to every possible form, and to prepare them for every possible aggressive work on matter. But as this requires, besides the use of the hand, the interference of some leading sense, as the sight, a simple mention suffices here, as we shall have occasion to see these exercises soon in action elsewhere.

But, after all, the best gymnastics of the hands are drawn from the things held, handled, modified in the daily habits of common life; we said it at the beginning, we repeat it at our conclusion. Finishing where a treatise on gymnastics would

begin, we turn our attention to the point where we found our patients. They were affected with incapacities only, or with incapacities and disorders of motion and locomotion. Against these simple or double infirmities we have presented a series of advices, of means, and of apparatuses that experience has shown the most efficient. But in such matters the means and instruments are more easily remembered than the philosophy of their application; whilst that philosophy is the very thing which is above all not to be forgotten.

Therefore we must represent, that whatever instruments or means are employed, our starting-point to obtain movement was immobility; that through immobility, though imperfectly acquired, we have been enabled to pass our pupils through many progressive experiments; that the greater became their immobility the easier and farther they moved; that immobility has been the beginning of all lessons of movement, as it is the supporting point of our own actions; that the more steady is that immobility the more manly, resolute, and efficient is the action which, we would not say follows it, but we expressly say, takes its root in it; that the kind of immobility impressed upon our patients every day, at every start, from their entering under our rule to their starting out for a new life, is the standard of our strength upon their weakness, of the reaction that our will creates upon their unwillingness in giving them a determination. That at each lesson, either if we teach any extension of the motive power, or are engaged in the painful duty of suppressing automatic movements, before every exercise we must concentrate their loose attitudes or stray gestures into compressed immobility; this is the beginning, this is the end of the muscular training.

So far we have tried to make our pupil learn to act and walk; either by the passive process, somebody or something moving him; or half actively, of himself doing that which he could not help doing under the permanent pressure of our command. But the passive or quasi-active process cannot last for ever, and the active one is very slow and intermittent. Between them nature has contrived an agency whose spring is magical for good or for evil; it is neither entirely passive nor entirely active; its initiation is passive, its performance is active; its modes are prescribed, its execution voluntary; and

its performance admits of protracted reflex spontaneity—we have described the power of imitation.

As an instrument of training we consider imitation as personal, when it affects the person alone, or objective when it effects objects. For instance, we raise an arm, the child does the same; that is personal imitation. But we take a book and set it upright on the table, the child does the same with another book; this is objective imitation. Everybody can understand that both of these are purely scholastic divisions, necessary to be kept in view of our practice, because each one initiates to different sorts of actions, and leads to different branches of acquirements and abilities: Otherwise, imitation is the power resulting from reflex spontaneity of repeating after others acts that we should not or could not have done of ourselves. It furnishes a motive to the millions of activities which have none primarily; it was the sole educator of the castes in the ages when the son had to imitate his father's doings to the end of the race; it is latent or patent, normal, endemic, or contagious; as seen in the Crusaders, the Flagellants, the Gold and Oil maniacs, etc. This power is in beasts as well as in man; the parrot has it for speech, the ape has it for gestures; we have it, too, physically confined in appearance, to the speech and gestures, but all our organs can and do imitate their similars in the measure of their physiological action. Children are known to cough, chew food, button their coats, walk, like their parents; imitation transmutes the particular accent of a few parents into a provincial dialect; it gives the Welsh, the Londoner, the Kentuckian, their individuality, and assimilates the *habitués* of Delmonico to those of Tortoni.

Personal imitation being a natural capacity in us, idiots or not, we must use it for the good of our children. Its physical effects may be expressed as the correct and rapid reproduction of actions limited to the sensible functions of the body. Never too soon commenced, never too much practised, never too far extended in its physiological applications. Personal imitation will create precision and rapidity, as gymnastics have created strength and endurance.

Beginning even before the child can stand, if necessary, we seat him on a chair opposite us, and putting our hands in certain relations to our bodies, we invite him to do the same.

That he does not do, and we do it for him, and keep his hands *in situ* long enough to make him feel that that is the point; and after a reasonable succession of failures he is to be placed in full view of a group of children smartly imitating movements monitored to them; this will do as initiation.

The movements of totality, as sitting, standing, kneeling, are to be followed by movements of parts, the head, one arm, or one leg; then come the movements of special organs—the lids, the lips, the tongue, the fingers, etc. These exercises will be concentrated upon the organs the most affected by mutism, automatism, chorea, etc. In this respect the hands will be treated as being affected with one of the greatest infirmities, the mability toprehend. And yet, notwithstanding the special adaptation of these exercises to the particular anomalies of each case, they must be, in every instance and at each sitting, merged into the largest mimical generalization, constantly making the children realize that the smallest part as well as the whole body may be called to answer the summons of an external will now, and must be ready at any time. This wide-awakeness of the whole being to so many and so varied impulses, gives the child a standing entirely different from his primary attitude, and makes him sooner or later assume an intelligent countenance which is not hereafter defaced.

But if our exercises of personal imitation are curtailed to a few serial movements of the arms, caricaturing the gestures of the old telegraph, the children are certainly taught automatism instead of reflex spontaneity; the imperfect application of a principle is dangerous to its final realization.

In fulfilment of this vindication, personal imitation, far from being the circular repetition of a few gestures, is the sudden, unexpected call into action of any organ that can be moved by the will. This is the broad ground of our training in education; but as the practice can make it more sensible, we will suppose and prepare a lesson given to a dozen children, with the double object of general and hand training.

Imitation is first induced by the concentrated operation of attention from the teacher to the child; individual influence requiring for its success silence, isolation, monotony of light, of color, of circumstances. But after any practical extension of the imitative faculty is acquired, this acquisition must be

carried from the quiet closet prepared for individual imitation to the open room where group imitation displays its contagious power: there we are presently.

We put our children together according to the kind of exercises to be done. If the imitation is to be alternately personal and objective, with dumb-bells, etc., we leave room between each of them, say four feet, in two or three rows. If the exercise is to require a good deal of attention from child to teacher, or need to be often interrupted by corrections and repetitions necessitated by individual failures, the children must be closely marshalled on a straight line, the teacher in front teaching, the silent assistant correcting wrong movements from behind the file. If the exercise is already quite familiar, and has for object, not so much the learning of new gestures, as the correction and more rapid performance of old ones, the children will be arranged on a slightly curved line, the more expert at the centre and extremities of the concavity, each of them seeing all the rest and the teacher; thus doubly impulsed and doubly taught.

The first attitude is upright immobility; without saying a word, we dictate with gestures the following attitudes; feet closed, feet open; forward the left foot, feet again closed. Raise the right knee, raise the left; a firm slap of the left hand upon it, and motionless. Some manœuvres of the left limbs; then eyes shut, and open. The two indices crossing each other; forward the right foot; arms crossed; down on the knees, up again with extended hands, first attitude—rest in immobility. Next we dictate more special positions. Face right, face left, hands raised, one foot forward, left hand out, both hands out, close the fists, open them, shut them again, extend indices, abut them, shut them. Down with the right thumb, up with the left, both flat on the closed hands. Little fingers extended, indices also, abut the four, shut them all. All the fingers apart, all close together, indices apart from the other fingers, little ones the same; all open, all shut. Majors of both hands crossed at right angles, all the fingers of both hands *en chevaux-de-frise*, all shut in that attitude, separate them briskly. And many more combinations easier to find than to describe, closing by three cheers and three claps of the hands, for the pupils are now warmed, bright, tired, but not exhausted; final immobility.

There has not been a word, a syllable between us; imitation did all. It has attracted the sight, impressed the brain, contracted the muscles; slowly at first, more rapidly afterwards. The spark which directs a movement from our brain to our fingers, lights up its reflex action in the fingers; the work, tedious at first, grows faster and more pleasant, till there is between us a perfect current, superior to, if anything different from electricity; current of understanding between teacher and pupils, as rapid as any could be between exponents and auditors. These never-too-much-repeated exercises quicken the movements, improve the function of sight, extend the range of perceptions, give accuracy to the understanding, put all the parts of the body under the ready control of the will, prepare all the parts for the full exercise of their functions, educate the dead hand to living work; in these exercises above all demember the hand.

This rapid description of group-training, which holds good in its general aspect for all sorts of groupings, must not make us forget by what slow process of individual studies we have brought the children so far. But after months of alternate individual and group-training, in fatigue, often in despondency, we see them with joy, not only imitating the physiological exercises, but carry their new powers of imitation into the habits of life; trying to eat, dress, stand as we do before them, proffering their services to weaker children, as we tendered ours to them; and finally doing by the influence of habit, what more gifted children do only under compulsion.

Imitation, confined to the parts of our own body, was naturally limited; but objective imitation is nearly without limit. Objective imitation is the correct and rapid reproduction of actions affecting the relations or the sensible properties of objects. Its rationale is the same as that of the other kind; consequently it would be useless to give a formal demonstration of it here, since we shall have so many occasions of showing it in action. The fact is that henceforth, Personal and Objective imitation will be brought in constant request to give precision and quickness to the training in all its branches.

It has been intimated already more than once, that the foregoing treatment of the motive organs could not have been carried so far without being impeded by many difficulties, arising from

imperfection of other functions not yet considered; among which are imperfect or abnormal sensations. In other words, defective sensations have necessarily interfered, more or less, between the child and the objects of the previous training. Now that the anomalies of the muscular functions have been mastered, those of the senses present themselves as the foremost impediment to future progress.

It would be quick work to enumerate these anomalies, apposing to each the best means known to obviate it; but this would be better remembered than understood; and this method must be thoroughly comprehended, if we want it to continue to be perfected hereafter. To demonstrate it is a duty, founded upon the conviction that this physiological method has already rescued many idiots, and shall be, when improved, the basis of the education of mankind.

For our practical object, all the senses are considered as modifications of the tactile property, receivers of touch in various ways. In Audition, the sonorous waves strike the acoustic nerves; in Vision, the retina is touched by the image carried by the luminous rays assembled at the focus; the Taste and Smell are yet more proximate modifications. But this touch is only the initiatory part of the function of the sense; the impression is to be carried through the nerves to the special ganglia; and the sensorial ganglia, after perceiving it, send it to be registered in the Hemispheres. But this last step, comparison included, does not belong to the sensation proper; it follows the sensation, but not necessarily, since so many of our sensations are felt without being deemed worth reflection and registration.

Tactile sensation proper is characterized by the feeling of the touch, or perception; the seat of the touch is the peripheric extremities of the nerves; but the seat of the feeling is the ganglion, intermediate terminus of the afferent nerves. Thence nerve fibres transmit the feeling to the hemispheres, and the different nerves transmit the will's orders to the peripheric organs of action. But the cerebral ganglia or hemispheres are not the seat of sensation. Their removal leaves a bird in a state of stupor, but it opens its eyes when it hears the report of a pistol, and then relapses into immobility; its sight is also retained, since it will sometimes fix its eyes on a particular object; and likely the perception of the other senses is retained,

for it occasionally smoothes down its ruffled feathers, in which operation the sense of touch is involved.

On the other hand, that the sensorial ganglia are really the seat of sensation, is proven by the greater size of the one ganglion corresponding with the superior attainment of its function in each animal; as in man the relative outgrowth of the hemispheres above the sensorial ganglia is in proportion to the superiority of his imaginative and reasoning powers over his capacity of perception through the senses.

These relative differences explain the immense superiority of the intellectual faculties of man, and his inferiority to many animals in purely sensorial perceptibilities. These remarks identify the principle upon which our sensorial training shall be based—that sensations take place from the peripheric extremity of a nerve to its centripetal ganglion; the first receiving the shock, the second the impression of the shock, through the nervous conductors.

We find illustrations equally beautiful and distressing of this analysis of sensation, when we compare an idiot whose eye cannot be struck by whatever image is presented to his blank sight, with another whose nerves transmit the impressions very slowly, and with another whose sensorium receives the impressions as defaced. This pathological analysis demonstrates equally well the point of the mechanism where the false image is formed in hallucination, and the process by which a slight, peculiar hesitation, previous to the utterance of speech, precedes by many months the confirmed symptoms of general paralysis.

But to limit ourselves closely to our subject, we insist upon this point, that the functions of the senses may be affected at their origin, along their course, at their centre, separately, or together. Let us state as a corollary, that the senses may be in themselves normal, yet left in the same state of impotence to perceive sensations, in which we have seen the motor organs incapable of moving, as if paralyzed, by mere deficiency of the will and of the intellectual synergy. This last incapacity may be more or less aggravated by sensorial ones.

From these observations, we shall be enabled to draw a few inferences that will have a practical bearing on the training of the senses.

We must make sure of the point or points where lies the deficiency of a nervous function. If it be at the origin we must cultivate the point of entrance of contacts, open the doors, enlarge or straighten the windows through which the objects of our sensations may come in contact with the peripheric extremity of the apparatus. If it be in the centripetal nerves, we must submit them to series of exercises of quickness borrowed from those of personal imitation; gentle Faradization may do good in some instances. If the sensorial ganglia lack sensitiveness we provoke them to such alternate, abrupt feelings that these cannot fail to be perceived; we move and stimulate them by contrasts. If the senses, though correct, do not receive impressions because they are not lighted by comprehension, we must come down, down again till we find the object of our sensorial, or better qualified, intellectual teaching, among and next to the very lowest things that the child understands. And if the want of impression originates in the deficiency of the will, we must create a desire; the thing desired shall stamp its impress on the awakened senses, and soon be looked for by the child. Practice alone can suggest the whole of the special rules of which the above are only generalizations.

But there is a principle in which culminates all the training of the functions, particularly of those of the senses; principle, whose full comprehension or ignorance determines the issue of all our efforts. This principle is that each function of the life of relation is virtually, can and must be made effectively, identical with its faculty; in other words, that each function is psycho-physiological.

This law, demonstrated in animals as well as in man, is not subject to exceptions even in idiocy. In the natural state animals elicit the highest degree of instinctive acuteness or even of comprehension from the use of their most perfect senses; but under the artificial training of schools and colleges the sensorial and intellectual developments of children appear quite disconnected, nay, are effectively rendered antagonistic; the overcultivation of one causing the drooping of the other; the exclusive training of the function impairing the faculty, the exclusive training of the faculty atrophying the function. Contrarily to this practice we say, the exercise of each function must give rise to a corresponding exercise of the comple-

mentary faculty; and at the present stage of this exposition we say more: Each sense must be taught as a function, and taught besides as a faculty.

The sense of touch being the most general, and in fact all the senses being mere modifications of it, we shall begin by it the training.

Although there is more than one sense in the touch, since there we find special nerves for pleasure and pain, cold and heat, pressure, etc., it does not behoove our subject to consider this sense under more than two of its aspects: one as a receiver of sensation constituting the touch proper, the other as seeker of sensations deserving the name of tact. By the first we perceive that we are touched by some body; by the second, we seek for certain characters or properties of bodies. In the exercise of the former we are to a certain extent passive, ready or not to receive the coming impression; in the exercise of the latter we are essentially ready and active. This does not constitute two senses, but two *modi operandi* of the same sense: the like remark obtains for the other senses; and if we can conform our training to this *modus operandi* of nature, we shall find our task of awakening the senses comparatively easy.

The Tactile function is the most important of our senses, as we have seen it the most general, and preceding all the others at birth. This sense is almost neglected in education, sadly abandoned in children to habits of dirtiness and depravity, and in women its disorders are intimately blended with those of hysteria, etc. In idiots the touch often does not send to the mind, or the mind does not receive from the touch its normal impressions; if it be not sickly and concentrated in one or two pleasing, repeated sensations, it is devoid of the ability of perceiving new ones, not wished by the mind. This sense in its passive and active moods is dull for all intellectual and practical purposes, and if exceptionally exalted is found governed by a few sickly susceptibilities.

If we examine the hand, moist with saliva, or in automatic agitation, and if we except the few peculiarities of delicacy above referred to, that hand gives scarcely any sign of feeling contacts; and decidedly far from desirous of using its tactile sense, tries to escape its exercise by all means. But

if we take it after a series of prehensive and imitatory trainings as those described above, we find it moist with the gentle perspiration of labor, a little agitated by its previous actions, but quite ready for a new set of experiments.

These experiments will be of three kinds; one to cultivate the perception, one to transmit it, one to give the knowledge of it; and though these three operations are always more or less united, it will be easy to perceive that the exercises may be calculated so that each one of these operations preëminates over the others, and we have only to make our choice in each series of exercise, according to the part of the whole function which needs the most of training.

When the peripheric termini of the nerves of touch are excitable or morbidly exquisite, we see the child avoiding normal contacts, and his organs left entirely a prey to the painful sensibilities of hyperæsthesia. Before doing anything to correct these perversions of the touch, let us look at their seat in the integuments, mostly in the hands. If they have not been levelled to the standard of working hands by previous gymnastics, they offer a curious assemblage of transparency, stiffness, and emaciation. Our duty here is imperative; at the same time that we give suppleness to the phalanges by passive exercises, we must hasten to cover the nervous termini with stronger epithelium by repeated friction against hard substances; anything which is rough enough is good enough for this purpose, as carrying bricks, turning coarse-handled cranks, spading, sawing, etc.

But when the external termini of the nerves of touch are dull or insensible, by looking at the hand we ascertain a softness of the articulations, an absence of prehension, a want of warmth and of circulation, greatly aggravated in winter. These signs of anæsthesia indicate another course of treatment; the objects of contact must not be rough, but substantial; this condition appeals for a full use of contractibility; at the same time the hand must be titillated with feathers as if it were for fun, passed upon bodies of various degrees of polish or of resistance, as on a slab of marble, or on velvet, etc. It must be plunged alternately into cold and warm liquids, in agglomerations of bodies of different softness or elasticity, as bags filled with eider-down, shells, peas, flour, small shot,

etc. The child without the concurrence of the sight, must tell the difference between the contents of these bags by the sole impression of his touch, etc.

The occasions for the special trainings of the peripheric organs of touch are of frequent occurrence; they being so often under and above the normal standard of sensibility.

Once we had a girl, seven years of age, much afflicted; for, besides her idiocy, which was superficial, she could not stand on her weak legs. Her sensations of sight and hearing were good, those of smell and taste rather fastidious; those of the tactile order, instead of being concentrated and intellectualized in the hands, were rather running wild through her frail crippled body, which could stand almost no contacts, or was seeking for those of an enervating order, making her a very nervous, tiresome, and often miserable child; against this tactile infirmity, which was tending rapidly, in our judgment, towards a more specific nervous affection, we instituted a series of tactile experiments drawn from collections of everything that could be handled; her eyes were shut, her hands ready, the things given to her and named by her, in a continuous and contrasting succession; attention of the touch, that is to say, protracted tactile exercises, gave a new direction to her feelings, she became more quiet and could use her once useless hands after a short time for ordinary purposes.

When the centripetal nerves are slow in accomplishing their action, the balancing-pole gives them quickness. To that end let us choose a light one, whose body is elastic, and send it into the hands of the child, who has to send it back to our hands extended in waiting for it; this is a fast game, in which the vibrations of the pole send their undulatory shocks, as the bow sends its to the fiddle through the strings; felt it must be; in token of which, the child who was at first sending the pole rather reluctantly, sends it back very soon with a sort of repulsive vigor, as if saying, "Too quick for me." True, the rapidity and number of vibrations thus sent and communicated to the slow organs is incredible, but the more efficacious.

The sensorial ganglia may be suspected of being the seat of the deficiency of sensibility when what remains of this is more dull than slow, and when the integument used in prehension and touch offers no particular anomaly. In these less

promising cases we must not relinquish entirely our daily experiments of the touch, but ask from hygiene and medicine the help that they can give, if interrogated with discretion on constitutional matters.

From this point up, the doubt about the organ where lies the defect or the breach of communication, is not easy to resolve. Nevertheless, if one sensorial function alone be stopped, or decidedly more deficient than the others, we may surmise that the disconnection is in the special apparatus, or sensorial ganglion; but if all the functions fail to transmit their impressions to the hemispheres, these intellectual organs may fairly be held accountable for the infirmity.

We have insisted upon these tests of the diagnosis as paramount to the treatment, because their analogue will be found in the study of other senses, and also because when we meet with similar obscurities, instead of treating actively all at once we know not what, we must keep the children under a simple treatment of observation. There, not being disturbed by much coaxing, exercised for their health and comfort, we have a chance to observe them; they have chances for attention, emotion, awakening of feelings: this too is treatment.

We need make no apology for introducing the taste and smell, after and almost as appendages to the touch, because they are the senses the nearest akin to it, and their treatment once disposed of here, we shall be at liberty to follow without interruption the education of the eye and ear as far as they will carry us into the intellectual training.

This remark does not imply that the taste and smell are gross material senses which have nothing to do with the intellect. Where we find them low and depraved, it is because they have been fed with vulgar, fastidious, or disgusting food, in the same way that reason is limited by ignorance, blighted by prejudice, distorted by sophistry. It is true, God has blessed with no taste or smell those who live in destitution, crowded among decaying animal and vegetable matters; but whenever the working masses are put in contact with elegant perfumes and food, if it be only to produce them, they are improved and elevated by it. On the other hand, any excess in food or drink, or aromatics, is visited by disorders of function which react on the normal qualities. The use, we mean

the normal use, of food and perfumes has a present and lasting influence on idiots.

Its present effect is to make them sensible to anything dirty, and desirous to avoid it, and to anything pleasant, and wishing to enjoy it. It forces the mind of the child to the exercise of many operations of comparison and judgment upon sensorial tastes and distastes, which could never take place in his brain at this present early stage of the training upon matters pertaining to less sensorial and personal feelings. It is, besides, a guarantee against gluttony, the delicacy of the taste extending soon as far as to the comfort of the stomach.

As for the future, the cultivation of these senses determines always the general, and often the special tendencies of our pupils. Educated in the enjoyment of cleanliness, good food, sweet air, their general tendency is to shrink with horror at the contacts of the street, chance, and beggarly life which is the lot of many uneducated idiots and imbeciles, and to determine their aspirations towards better and higher walks of life. That special culture opens their laboring avocations in the way of some healthy, honest employment of their small abilities, by which they become gardeners, florists, and farm boys, instead of slaves of competitive labor in feudal, infectious factories.

We do not need to say much more, to show that the education of these senses is of the utmost importance, even when being only dull, they are not found incapacitated by some peculiarity. Borrowing nearly always our studies from contrasts, rarely from similars, we must be careful to go far enough in the extremes of differences to make them felt, but not enough to blunt the nerves. There is a gamut in the scale of smell and taste as in the scale of sound; it is not beneath our dignity to compose series of experiments to awaken the dull senses of idiots, as the florist combines his bouquets for enervating and other purposes, or the cook prepares his dishes for the satisfaction of delicate appetites.

For those unmoved by moral or artistic considerations, or even little sensible to the comfort or happiness that idiots certainly derive from the appreciation of good things, it will be necessary to present the training of the smell and of the

taste, in its true relation to strictly intellectual and spontaneous faculties.

In the first place, in the blank condition of their mind, anything desired by the taste or smell, even the most vulgar, which can make an impression must be welcome, as the first object likely to exercise attention, and to be compared with the next. In the second, if the child does not care for anything but a few objects whose taste and smell we taught him to like and wish for; well, there are our first levers, there are the characters of our drama, let them speak. A smell attracts the attention of the child; his hand, which has never held anything, brings the perfumed flower to his nose, or oftener to his mouth, very frequent and curious confusion of the two senses; let him do; do not disturb this first intention, this first desire followed by a voluntary action, and its rewarding pleasure, even if he eats the flower, instead of smelling it. But this is only the beginning.

The senses and delicacies have declared their affinities for each other. We cultivate the former, we select intelligently the latter; and here by satisfying, there by contrasting these appetites, we multiply the objects of comparison, we graduate the exercises of the child, and we always end a more sensorial, would-be vulgar exercise of the taste or smell by increasing the attention, the comparison, the desire and will of our pupil.

When he is familiar with a certain number of objects by the use of sense, those are spread out, and he is asked which he prefers, which he knows by name if he can speak; or if he does not speak, to select, or even to eat or smell those he likes best. Then depriving him momentarily of his sight, we present successively the objects to the tongue or nostrils, which must discriminate them without the help of the touch, sight, or hearing. When an idiot is brought to that point of attention, comparison, desire, once or twice a day for several weeks or months, for the satisfaction of this class of appetites, experience does not permit us to doubt that he soon can be attentive, reasoning, willing, about something else; we could sooner doubt that the yard-stick used to measure lace could measure calico; that the child who counts cherries, can soon count dollars; attention once fixed, is fixable; discrimination and will once acting upon our series of phenomena will act upon others,

provided these new ones are natural, and presented in a physiological gradation.

Before entering into the treatment of audition, it is necessary to consider the anomalies of that function. The diagnosis of the various incapacities of the ear is difficult. The ear in man does not show its activity by external signs, as it does in some animals, nor even as much does our eye. Some people seem to hear well though perfectly deaf, as when, through the vibrations of the floor, they follow the rhythm of music or the dance in measure; or when a deaf-born baby begins to understand and to use language as long as it lies on the vibrating chest of his nurse; but hears no more and speaks no more as soon as it is deprived of its contact with the resonant walls of this living musical instrument.

Hence, parents generally assert that their child was not born deaf, but became so precisely at the time when it was put down to crawl and walk. Hence J. R. Pereire concluded conversely that he could teach the perception and the reproduction of the speech by the touch; in which he succeeded so well that he communicated to his pupils even his own southern accent.

On the other hand, children may not hear because, not of organic, but of intellectual deafness." A celebrated surgeon once sent us a deaf mute idiot, a child who could give no sign of hearing and was absolutely mute. We had seen with Itard several children intellectually deaf; and having ascertained that this one was sensible to a single noise produced by something he liked, we promised his parents that he could be made to hear, which he did inside of three months, and to speak, which he did inside of six. But in the majority of cases of apparent deafness and mutism, we must be sparing of promises. One fine-looking idiotic girl, after years of apparent deafness, was taught to hear and comprehend the language very well; yet she remained mute, being prevented from speaking, even from crying, by local paralysis; showing that mutism cannot always be safely referred to either kind of deafness indicated above.

Besides the intellectual deafness caused by idiocy, alienation, ecstasy, and the organic deafness caused by defects in the organs of audition, there are several causes which interfere

with speech in children, idiotic or not. These causes which complicate or aggravate idiocy are paralysis, of which we gave an example. Chorea, dyspnoea, an unsymmetrical arrangement of the maxillary bones, and teeth, vices of conformation of the larynx and tongue, and a high, ogival or funnel-shaped palate, etc.—accessory infirmities which require the help of medical, surgical, or mechanical skill. Leaving this to whom it belongs, we concentrate our efforts upon the intellectual deafness produced by idiocy.

This deafness and its consequent muteness is not always absolute; the children may hear a few words in a sentence, and speak in the same proportion; they may hear words uttered very near them, and they will speak or answer at the same distance—not farther; nevertheless, to embrace all the cases, we treat of intellectual deafness in its broadest acceptance.

The sense of hearing is put in activity by the stroke of atmospheric waves into the auditory apparatus. Its functions are hearing, auditing, listening, selecting, and repelling sounds. We simply hear when a sound makes an impression without the help of attention; we audit when the organ is kept intellectually attentive; we listen when the sounds or their meaning being difficult to gather, the organ is kept in functional erethism by the will. The ear selects one sound among many as when following the tick-tack of a watch among clocks beating the same measure, or the voice of the broker among the *meleé* of cries at the stock exchange, etc.; and the ear eludes altogether the impression of all sounds when our mind is deeply engaged otherwise. These two latter uses of the ear are acquired by experience in special circumstances; the first three are, for the sake of simplicity, reduced to two—the passive mode, or hearing, the active mode comprising auditing and listening, whose distinction is only incidental, though important.

The sounds, objects of our present studies, are noises, music, and speech. These three classes of sounds speak respectively, the noises to the wants, the music to the motive powers, the speech to the intellect.

From passive hearing to active audition and intense listening applied to these three classes of vibrating phenomena, there

are many grades that are far from being gotten over by many children—even by most men; in this way we carry idiots as far as we can, and generally far enough for ordinary intellectual purposes.

The sounds of noises are like hieroglyphics of phenomena, meaning the thing producing the noise; one means pouring rain, another means the rushing of winds; one means sawing wood, another means the frying in the pan which awakens the child's appetite. The wild boy educated by Itard did not hear the report of a pistol discharged behind his head, but heard the fall of a nut upon the floor. If water be poured from one vessel into another near an idiot apparently deaf, at a time when he is very thirsty, he will turn his head and go for a drink. What a field to awaken the attention and make the organ ready and sensible!

Music, if it has no special meaning for idiots, is competent, by the arrangement of its vibrations, to excite in them many unknown impulses; hence music has more lasting and varied applications than noises in our treatment. Noises are more particularly taught to individuals separately, in isolation and in ambient silence; music is employed more for groups in nearly all its applications, and they are many.

Music pleases the child without hurting him, a few exceptions reserved; it gives rest from hard labor; it causes in the immovable child a tremulousness of all the fibres, which is easily turned into incipency of action; it prepares the nervous apparatus in a similar manner, awakens, quickens, and supports the thoughts wonderfully; it dispels anger, weariness, melancholy, and disposes to gentle feelings; it is a moral sedative by excellence. *of the first quality.*

We hardly think it necessary to say that to produce these physiological effects the music played before and with the concurrence of idiots must be selected or composed expressly for their wants, their tastes, the necessities of their various circumstances.

The general characters of their music must be striking contrasts, long silences after vivacious measures, etc.; the morning airs beginning with the tunes corresponding to the natural dispositions of the children, modified by the brightness or dullness of the atmosphere, by the heat, thunder, rain, snow, and

any particularity that affects the emotional powers. The tunes must carry them thence by a pleasing transition to the point of slight reflective excitement favorable to study; the tunes played to concentrate the attention acting like a sedative to muscular exertion and those relieving the mind from these bonds must express mirth or muscular vigor to disperse the children towards play-ground or gymnasium.

Preceding physical exercises, the strains shall be lively; and when accompanying them shall affect, as nearly as possible, the measure of the actions commanded; and when later, accompanying the exercises of human voices, the notes must come forth in long, prolonged tones, favoring the emission of the steady sounds of vowels or syllables. As for the artistic use of music idiots are sensible to it. As a recreation, their taste is of the popular or colored kind; they like lively funny airs and songs, without being indifferent to impressive ones. Most of them like to be drowned in torrents of music, being soon carried away by the impulse of its vibrations; and it does them good to be served often through the day with treats of harmony as with food, provided there be variety in the acoustic relishes.

The first teachings of music are not the product of any profound system, but the result of long, steady cultivation of habit. The child who does not care for, or does not even hear music, is treated as if he loved it; and as there is plenty of it about the house, let him be struck by it. Only, as he is not sensible to it in ordinary conditions, we must create the conditions most favorable to prepare his senses for hearing. To that effect, when tunes are to be played, we put the intellectually deaf child near the piano, and if necessary at first, we let him support his hands, even his chest, against the instrument, which most weak or lazy children are willing to do sooner than to stand upright. When he is just settled in this posture the piano sends forth its strongest vibrations, then its sweetest tones, then comes a long silence, followed again by vibrations. This takes place in the midst of group teaching, with the incitement of the other children auditing and singing themselves. Contrarily, the next experiment for perceiving the sounds of music shall be made an individual exercise; the child kept in isolation, even in darkness, and music played at a distance, whence it comes unencumbered by the

noise or movements of other children, will penetrate sooner or later into the blank organ. Surprise sounds, too, are tried occasionally to start up an unexpected sense of hearing.

As soon as the child shows signs of sensibility to music, these various experiments must be made pleasant enough to transform the simple function of hearing into the capacities of auditing and listening. One, auditing is developed by giving continuity to the tunes as if they were discoveries; the other, listening is created by breaking the continuity of the tune at its most interesting accent-point where in language we place the mark of interrogation; leaving the ear of the child hearing yet, and listening, as if thirsting for more.

But above all, and for our present object, the teaching of music must be soon blended in that of speech, and first of voice. The voice which sings emits vowels; these vowels may be intoned by imitation to the diapason of the speech, and after a while supported by consonants. This transformation is brought on insensibly in the course of the musical training, and shall be more technically improved hereafter.

If we now look back, we can see that we began to use music to please, to attract instinctive attention, to give a passive vibration to the muscles and nerves preparatory to and during exercises. We have used music to give perspicuity and continuity to audition, and to support the organs of voice in learning to speak. Finally we shall find it intermingled with most of the exercises and habits of life of our pupils, as a happy, healthy stimulus. It was the most pleasing and unmeaning of our agents; it has become the most useful, it has adapted itself to our deepest purposes.

When idiots cry we must remember that they are still children, some of them little infants. Many of them do not speak, they scarcely move, they have no other language than cries, no other gymnastic than the diaphragmatic spring-board upon which they exercise their vital organs in respiring and screaming. If we knew more, we should appreciate these voices, all significant of the wants, the love, the excitement of life reduced to its last limits of inwardness. Consulting our own sensations, we could remember how the chest requires expansion, and how often we have yawned with loud sigh after protracted silence and immobility; we ought sometimes

to revert to our own physiological necessities when we are on the verge of impatience about physiological manifestations from children that we do not understand. The truth is about their cries, that besides their value as chest gymnastics, they are their sole alarm in danger or want, their sole means of social communication. But more, these cries are voices after all, they are the only beginning upon which we may be able to found the teaching of the speech; altering the cry into a medium voice, supporting that voice on successive consonants, and so on, preparing the materials of true speech out of the animal voice.

Before commencing to extract the speech out of the instinctive language of cries, we must take a good survey of the organs from the lips inwards; be sure that there are none of the physical or pathological defects mentioned above which must have been removed if existing by this time. We may say the same of the moral capacities of the child to which another part of this book is reserved; they demand all our attention previous to entering into the training of the speech. What we want is good-will on the part of the teacher and pupils, and a willed understanding between them. Such, with confidence and winning kindness, are the physical and moral elements to be insured before trying to teach a mute, or half-mute idiot to speak.

Our language being the representation by a combination of sounds and articulations, of all the human impressions and spontaneities, it is manifest that the idiot must find it the act the most impossible and antipathetic to his nature; because it requires what he lacks most, the synergy of several faculties with several organs.

To make it sufficiently expressive upon idiots, we have to strengthen it with uncommon accent and emphasis, acting with words on the tympanum, in the same way as moral coercion acts on the mind. Besides, to teach the distinct perception of the voice, we must emit it from very near, and more than distinctly, contracting sound as well in volume as in pitch. And to teach the meaning of the words as representatives of entities, properties, actions or commands, the accents or emphasis will better mark their intellectual value than all possible commentaries. So that the exaggerated accent and

emphasis, far from being a temporary expedient, will accompany all our teaching to its end in slow decreasing progression, except in a single case worth stating instantly.

We drop the accent when we want to command anything for which the child must make a choice of his own judgment. With this particular object in view our speech to him must be of such evenness that not a syllable could influence him to follow our own idea instead of his free will; then the gestures and look must be as neutral as the language; more about this in the moral training.

The mechanical processes of speech are of two orders; one taught in the imitation-room from mimicry for the formation of articulation; the other we have seen borrowed from music for the training of the voice.

At the first lesson appointed for the beginning of articulation, the child is made to resume his morning and evening exercises of imitation without warning, explanation or ado; the movements are mostly concentrated in the hands, the hands brought about the face, the fingers put in and about the mouth. All the parts of the face are moved in correlation with the fingers, and the mimicry is effected with the double object, first: of giving the child an analytical survey by the touch, the sight, and the movement of the various parts involved in the act of speech, from without inwards; second, of making him execute silently after us the movements of the different parts employed in speaking. At this second stage of imitation, the hands have been withdrawn little by little, the teaching and the taught faces have come nearer, taken a better survey of each other, and their execution of mimicry has grown warmer, quicker, more correct. After this, all the organs of speech, the lips, tongue, etc., are moved freely in all directions and in every manner; and once, as if by chance, in the middle of the mute, mimical exercises, the lips being well closed, we part them by thrusting out an emission of voice which pronounces *Ma* or *Pa*, it is just indifferent which. If the child's lips be soft, pale with confused delineations, *Ma* is the word; if the lips be red, firm, well-shaped, we begin with *Pa*. The same remark will rule the beginning of all the libial, lingual, dental, or guttural syllables; we are governed at first by the structure of the organs, but after choosing the easiest to be pronounced

first by the pupils, we soon disregard them, and do not linger in the matters of routine, but advance every instant.

Often things do not go on so easily; particularly in joining the sound of vowels to the articulation of consonants. This difficulty is generally overcome by the musical exercises of the voice. Here music ceases to be a passive pleasure, and becomes the unpleasant, irresistible propulsor of the voice. This change must be made by an insensible transition; happily as we have had time to transform or concentrate gradually the imitative movements of the whole body into the imitative mimicry of the organs of speech, similarly we had the same opportunity of time and instruments for transforming the passive audition of music into its imitation by the voice. These imitations may be at first clumsy, short, accidental, rare even; let us enforce them more and more at the piano, with our own voice, by private efforts, in private groups, perseveringly exacting voices out of mutism, long sounds out of short ones, series of them after single emissions. The whole is done with the help of the piano or of other instruments supporting well the voice; and afterwards we again take hold of our good lever imitation, moving this time with it altogether voice and articulation, in isolation or in groups, for the emission of syllables simple, double, or compound, once, twice, or more times, with or without music, with or without formal command.

In this completion of the function it is of some importance which syllables are first taught. We present as foremost the two first indicated, *Ma*, or *Pa*; they are the proper ones to commence with when the lips are in normal relations, and only remarkable, as we said, for their softness or firmness. But if, in their construction and relation to each other there are anomalies we would find it more rational to begin by other syllables. For instance when the upper lip is thick, and the lower one thin and short, abutting easier to the upper teeth than to the upper lip, the syllables *Va* and *Fa* will be proper. Some anomalies of structure or relation concerning the teeth, tongue, and palate, will offer other inducements to avoid and to select different syllables to begin with. Rarely the tongue moves easier than the lips: but if so, "*La*" or "*Da*," will present an advantage for a start. Where the organs are normal the rule is to teach the syllables in the order in which they are emitted

from the lips backwards, from the seen to the unseen organs. Otherwise, we must follow the indications of nature's own plan, the exceptional progression of the teaching seeming fixed beforehand by the peculiar build of the parts.

Another rule is to commence the lessons with syllables beginning with a consonant, and to use those in which the vowel is inclosed between two consonants alternately with those in which two consonants precede the vowel, for fear the tongue should lapse into the habit of one of these pronunciations and refuse to emit the others. The syllables beginning by a vowel come later yet, as it is a great deal easier to say *Pa* than *Ap*, the first utterance being supported by the lips, the second by nothing. More in regard to the teaching of speech might be said, but as it becomes soon mingled with that of writing and reading, we will not anticipate here what we shall have to expose hereafter.

Enough to say that when we have followed any of these graduated categories for a certain length of time we find them dangerous as creating routine, more particularly those favored by the peculiarities of structure above referred to; so that the series of exercises the most appropriate at the beginning must soon be avoided, and replaced by, and afterwards alternated with, their exact opposites. Finally, we must not forget that in the primary trials, doubling the syllables renders their pronunciation easier and more attractive; later, it would be an impediment to progress, and an incitement to stuttering; but at the start everything sounding like syllables is to be encouraged first, and corrected afterwards. Therefore all our primary rules here are nothing but transitory and transposable expedients subject to the higher law of observation. So far we have spoken of the exercises of the speech only as individual, and forced by the strength of direct imitation; but as any one can surmise the child has, for a long time previously, been made a witness to the exercises of the speech by groups, before he is made a participant in them. As soon as he gives certain signs of attention or tries to imitate speech, he is systematically exercised in it alone and in a group. At whatever point of the vocal teaching we are engaged, it is important to remember that speech is such a spontaneous faculty, that it is not enough to teach it, to produce it. The chances are that

what the child learns to-day, he will not show at once; but occasion will bring it out later; or what the child learned and did not show in private teaching will appear when he shall take his part in the group, and *vice versa*; and what private or group emission of voices cannot bring out, may flow from his lips without effort after some lazy looking on, and accidental hearing: we sow and nature fecundates.

We must conform our teaching to that physiological law of the production of voice as well as of everything spontaneous in man. At the time when we teach syllables or words with so much fatigue to ourselves and concentration to the child, we must not expect to see him using them in his own language; but as if he had learned nothing, he will continue to emit for his own use the bi-syllabic repetitions whose grammar is music. "*Ah-dé-dé*," shouts Edward in his joy; "*Ah-né-né*," repeats he in disappointment; ringing or nasal sounds which adapt themselves exactly to theories or philology, like the colors of a painter to a landscape. Our primary teaching must go through without touching this natural speech, taking care not to substitute Greek etymologies for those of passion, fearing to suppress in the speech of the child its higher element, spontaneity; justly afraid of our coming under the severe apostrophe of J. J. Rousseau, "Everything is well as it comes from the hand of the Creator, everything degenerates in the hands of man." If anything is divine in speech it is not grammaticism, it is the bounteous fluency, which flows like a stream from the soul.

For a long time we must be satisfied with this double progress, not always keeping pace with each other, of formal speech in the training, and informal language; later exercises and practice will tend to unite them.

We postponed until now an observation that the reader has no doubt supplied; it is concerning the part to be attributed to the sight in the training of the speech. Sounds are taught by audition, but articulation is appreciated by the look; we had no opportunity to consider the functions of the eye so far, but we come to them presently.

The sight is the sensorial function by which we receive, through light, the impression of objects standing or coming in its range. This constitutes passive vision. Active vision or

look, is the faculty of the same sense so very special and diversified from man to man, that two painters never reproduce, *i. e.* see the same object in the same light. But, to understand its grandeur and power, not in a Titian, a Cuvier, or a Schiller, but in our own selves, we have to compare the capacity of our sight with that of the same sense in some idiots. In them it is reduced to the sensibility of the retina to a few rays of light falling obliquely into the chamber of vision, nothing else seeming to be perceived but a dark obstacle. But what wonder! when our own mind is much concentrated, we do not see things actually passing before us, nearly striking us, no more than insane, at some times, and idiots ordinarily do. In most idiots the sight, without being so deeply anomalous, is much perverted in all its modes of perception or in one only; as when they see things, appreciate their number, their shape, their usage, and cannot discriminate their color. Idiots even seeing quite accurately, seem to experience various difficulties in looking at, in directing, or concentrating their willed regard in some direction or at some distance; generally their look, when they have any, does not seem to go or stay where they wish, and appears thrown at hap-hazard. The voluntary functions of this sense are always defective. They see, but look badly or accidentally, and use their sight only for hunting the things they crave for; some even, when asked to look at something, shut their eyes firmly when trying to obey. In fact the sight is, of all our senses, the most intellectual, and the one whose anomalies are the most varied and the most connected with intellectual disorders in idiocy.

For these reasons and on account of the help we borrow from the restoration of this function for all parts of the training, we must begin the education of the sight as soon as possible. But let us confess that if the diagnosis of the infirmities of the ear is more difficult than the distinction of those of the eye, the training of the eye presents more real obstacles than that of the ear. When the function of the sight, entirely involuntary, is reduced to serving a few instincts, and restricted to the reception of a few passing reflections of light or of brilliant objects, the task is difficult. When we taught the ear, more passive sense, we had only to send the sounds into the concha and they entered, striking the tympanum, moving the

nerves through the ossicula: we were acting and the passive organ was reacting. But the eye is an organ more active by its nature, inactive only in idiots by exception, and not easily coaxed to action. To make a child feel a body, we put it in his hand; to make him smell another, we bring it to his nostrils; to make him taste another, we place it in his mouth; but to make the idiot see, when he turns his eyes away, or covers them with his hands, or shuts them, or throws himself down when any object is presented to his sight, what shall we do?

No doubt the resistance to an intelligent use of the sight is not always so complete, violent, and obstinate; but even when it is of a more negative character, we find it insuperable enough in its milder forms, to bring home to us more than one discouragement.

Of all the things, if there be any, which can penetrate the glassy or tarnished eye of our pupil, it is our own look: the looks call for the look. We keep the child seated or standing, in front or close to us, alone, no noise, no company, not much of light nor of darkness; our feet ready to immobilize his feet, our knees his knees, our hands his head and arms. We search his eyes with our intense and persevering look—he tries to escape it; throws his body and limbs in every direction, screams and shuts his eyes. All this time we must be calm and prepared, correcting eccentric attitudes and plunging our sight into his eyes when he chances to open them. How long will it take to succeed? Days, weeks, or months; it depends upon the gravity of the case, upon the help received from the general training, and from other means of fixing the attention of the eye soon to be exposed. But the main instrument in fixing the regard is the regard. When this does succeed, as soon as our look has taken hold of his, the child, instead of taking cognizance of phenomena by the touch or smell, uses concurrently, and after a while exclusively, his newly acquired power. At that time the voice and commands will be better understood, and need not be uttered so loud, since besides hearing, the child now looks at us, and understands also the meaning of our words by that of our physiognomy.

But there are many more means of fixing the sight. We need only present, as in a lump, those borrowed from private life, from necessities requiring more or less the concurrence of

active sight; such as, if we displace and remove a little farther from the idiot, every day, the things ordinarily used by him and for which he was used to look with his hands. The dark room is made the theatre where light will appear at intervals; sometimes representing geometrical or other configurations at other times simple bright fields for the exhibition of silhouettes, etc. The same room serves to exhibit fire-works on a small scale, and the kaleidoscope on a large one. This latter has more treasures of combinations of colors than imagination can conceive. If made of large size, motionless or moving by turns, single or composed of two cylinders revolving in opposite directions, or one moving, the other being fixed, it produces the most wonderful attraction for the sight; the Institution has no instrument for training superior to this. Now we take again the balancing-pole. It was used to create prehension and to do away with morbid sensibility of the fingers; in the present case it will serve as a monitor to the mind, as an urgent warning of impending encounter. If it reverberates smartly at first, the better it will call the attention of the child, and make him careful to look at the pole to appreciate when it comes, in what direction, at what rate, and how its unavoidable reaction may be managed to save part at least of its hard contact. This exercise is no more a sinecure for the eye than it was for the hand. By these and other means of the kind we accomplish our object of moving the look, steadying the regard, and deducing intellectual consequences from what is seen.

When we say that these means and their analogues succeed in giving an incipency to voluntary sight, we do not mean to convey the impression that it suffices' unavoidably to touch the retina with our own sight or with wondrous lights, etc., to make the child begin to look as by miracle. No, we do not promise that; because this sudden result is the exception. More ordinarily the impression desired takes place slowly, after series of experiments properly contrasted. In the more refractory cases, the direct individual exercises of the look are to be alternated with long standings among groups of working children, whose various modes of activity attract the attention of the lower idiot, if not in six months in three years. Then the use of the sight begins to be one of the

elements of a progress very limited indeed, but not less striking that beneficial. There is scarcely one child as low as that in a hundred; and lower idiocy is aggravated by extensive paralysis or some rare forms of insanity.

When we have secured the use of this function, even to the smallest extent, that little must be instantly applied to some educational purpose with the help of other instruments adapted to the present incapacity of the child, to make him appreciate the properties of bodies, which otherwise fall naturally under the sight of ordinary persons. These properties to be perceived by the sight with the help of special instruments are colors, forms, combinations of forms, dimensions, distances, plans, etc.

Colors are taught in the dark room with colored window-panes, as in the school at Syracuse, or with bodies of different or similar colors, assorting by pairs. Cards, ribbons, balls, marbles, samples of any sort of colored objects will answer, provided their similarity and dissimilarity can be incessantly referred to and tested. Balls and their receiving cups of the same color, and all sorts of contrivances of that kind for pairing colors, may be concurrently employed; care being taken that in trying to convey to the mind one property of these bodies, *i. e.*, the color, some other property of the instrument be not so prominent, its shape for instance, as to attract the whole attention of the child to the exclusion of the color; we have seen that occur. The familiarity with colors once acquired by these means is to be applied to things of daily use or enjoyment, such as wearing apparel, flowers, fruits, etc., care being taken to present mostly what is neat to the sight and pleasant to the mind.

Our appreciation of the shape of everything in nature has its foundation in the knowledge of a few typical forms to which we refer as matrices for comparison. The simplest of them are circles, squares, triangles, etc., adapting themselves to their corresponding forms and to no others. The child, by contrasting the differences, must find the similarity of these shapes. The same comparison must be established between solid forms and those only painted, and between these types and the objects of daily use, similarly if not identically shaped. The combination of forms made up by the juxta or

superposition of objects is well presented to the children by the blocks already employed, with which complex figures are built in plan or in elevation. Blocks near in form to dominoes can illustrate this kind of combination, and will give us an opportunity for graphic descriptions of some of the exercises of objective imitation that we have postponed to describe, but which we employ so profusely whenever we find it convenient.

The child being in front of the teacher, a table being between them, a few blocks piled near their right hands, the teacher takes one, puts it flat before him on the table, and makes the child do the same. The T. puts his block in various positions relatively to the table and to himself, and shows, not directs, the C. to do the same. The T. puts two blocks in particular relative positions, and the C. does the same each time. What was done with two blocks is done with three, with four, with more, in succession, till the exercise of simple imitation becomes quite intellectual, requiring at least a good deal of attention and power of combination. Later, the T. creates combinations of two or more blocks at once, and the C. must imitate all of it at once; and finally the T. creates a combination of a few blocks, destroys it, and orders the C. to build up the like, whose pattern he now can find only in his mind.

To relieve the tension unavoidable in these exercises, it is well to close them by the building on the same principle of walls, towers, and other easy fabrics on a large scale, at which groups of children will work with eagerness; and whose sudden downfall will cause a happy excitement. Once in the Pennsylvania Training-School for Idiots at Germantown, we were studying the case of a child who could not be induced to move. The matter with him was not paralysis nor weakness, but extreme apprehension of any contacts to be encountered by displacing himself. We left him standing on a spot, when his friends began to build one of their high towers of blocks around him; he was our prisoner. A little dismayed but unmoved, he would have stayed there till doomsday if we had not taken his hand through the blocks and marched him out of the ruins to the delight of his fellows. He alone was not laughing. But we ordered the same thing to

be done with other children, then with him again; soon he understood the game, took mildly, according to his nature, his share in the burst of joy, broke through the building of his own slow impulse, and even soon helped in the erection of new ones. Dating from that event, he certainly became more confident and more deliberate in his movements and actions.

The Size of bodies is appreciated by measurement; and this effected by the sight, by the hand, and by special instruments. The measurement by sight is our present object, and its application to one of the three dimensions will sufficiently show how it applies to the others. Dealing with objects already known, which do not need description, we use at first the French Mètre, whose divisions into tenths are rather more sensible than those of the yard. Next to a stick one mètre long and divided on each surface into ten decimètres, we put another nine decimètres long and equally marked, another eight, another seven, till the smallest, which is only one decimètre in length. After commencing the comparison with two sticks, the longest and shortest, we soon mix them all together on the floor or on a table, we call for them from the smallest up, or from the longest down, and the child must choose them, guided by his sight alone, and range them in order according to their size, verifying only by the touch what he learned by the look. What he can do with the mètre we try with the yard, whose divisions into inches or two inches will task more closely the compass of his vision. Nevertheless, we are ourselves sometimes uncertain in our choice among so many sticks, when the child is not. Few old men have been taught to appreciate this knowledge. Where this has been recently introduced into public schools from the idiot schools, it is not certain that it has been presented more physiologically than the exercises of personal imitation.

The notion of Distance takes its rank here, but only in its elementary form. When we want a child to appreciate spaces, we separate things of the same kind—books, for instance; we place them at different distances from each other, and we make the child do the same; first by imitation, next by command. When distances are to be measured in a room, from point to point, from person to person, or things, the

child being the fixed branch of the compass of measurement, the distant object or point is the moving extremity of the same instrument. When this abstract instrument of measure works well at short distances, in a medium where the points of repair are familiar, such as the window, the mantel-piece, etc., we transport it into the open air, taking for our points of repair, the nearest trees, houses, fences, etc.

Of all the properties perceivable by the sight, those of the Plane are the most difficult to acquire, but the most necessary in education and practical life. On a knowledge of the properties of the plane depends our successful walk or fall, the erection of any structure, the relative situation of the lines forming drawing and writing, the delineation of all representations of objects by carving, cutting, modelling, casting, and endless varieties of modes of expressing a meaning by lines on surfaces; those lines idealize matter. It will not be, therefore, a loss of time, if we take great trouble in giving the idiot as clear an idea as we can of the plane in its relations to human work.

When a child cannot understand a plane, such as the floor or a table, we know it because he will try to put up things—ten-pins, for instance, in a variety of oblique attitudes, more or less distant from the vertical. This error is to be corrected by letting down a succession of plummets falling vertically on the floor or table, between which the child soon finds the vertical for the pins. Planes, level or undulated, are to be made by the hand, spade, spoon, or roller, on sand, to the great delight of the children. The plane for writing or drawing is studied by putting wafers on various points of a circumscribed plane, and letting the child do the same on another; marking and remarking exactly the centre, the corners, and other prominent points of the surface. We come nearer to the idea of the plane by touching with our index finger, every prominent point of a limited plane, such as a slate; the child doing like us. When he begins to succeed in this sight-exercise, we put a pencil in his hand, we take one in ours, and we begin to draw slowly and distinctly a well marked line from one point of the slate to another—say from the top to the bottom. This he does also, with many peculiarities of weakness and deviation. He has acquired the virtual capacity

to draw lines, but he has not yet the synergy. In this respect, the difference between idiots is immense. One can lift a weight of fifty pounds who cannot hold and direct a pen; another can work all the day in the field without great fatigue, who can scarcely read nor trace a faint line on the black-board without showing unmistakable signs of exhaustion. We have seen a child, otherwise active, spend several minutes in tracing down a vertical line with chalk; the line was scarcely visible, though he was helping his right hand with his left with all his might; both hands became so exhausted that they were pearly with perspiration.

The depreciation of force, not by the straining quality of the work accomplished, but by the intensity of will employed, shown in these cases, cannot be considered as peculiar to idiots, but only as extreme in some. A teacher of Freedman in Tennessee, writes to our esteemed friend, the Rev. Samuel May, of one of her pupils, a very intelligent colored blacksmith, that three evenings after he began to learn his letters, he could read correctly three pages in a "Wilson's Reader;" "but," says she, "the sweat ran off his face as if he were working over his anvil." This is enough to show conclusively that we must not calculate the abnormal by the normal innervation; and that we are to measure the strength of idiots in particular, not by our standard of fatigue, but by the special condition of waste of their synergy.

To recommend this almost maternal attention for our children we have left them very nearly drawing, that is to say, knowing how to do it, trying to do it, and yet unable by want of nervous power. We are now in presence of a nervous difficulty, which can be assimilated to some extent to the deficiency of contractibility which hindered our first exercises of prehension. As we then strengthened the muscles, we must now strengthen the nerves; and as in the hand these two sets of organs are exceptionally numerous and delicately blended, if we can submit the hand to a series of exercises in which the muscles will be called into play subordinatedly, but enough to corroborate the nervous action of drafting, we shall succeed in giving to that function the power of exercising fluently and without faintness the meaning of the mind and the order of the will.

There is more than one way of modifying surfaces by drawing. If pen or pencil can express our meaning on surfaces, we may find other instruments that will produce other kinds of drawings. By them, new surfaces will be created expressive of meaning as well as the work of the pencil. Happily these modes of drafting, not at the surface, but into the very substance, by creating new edges or surfaces, necessitate the employment of a not inconsiderable proportion of muscular contractibility extremely favorable to the support of the nervous action, whenever this action is not entirely under the control of the will, as at the outset of the training of idiots, and in the medical treatment of similar disorders.

This indication of supporting the failing nervous action by a certain degree of firmness in the prehension or in the grasp, is fulfilled by the following exercises. We give the children plastic substances, such as soft sealing-wax, clay, putty, etc., to shape into squares, rounds, or triangles, or in imitation of some familiar objects; taking care, as everywhere else, to not repeat the same exercise till it becomes stupefying; but on the contrary graduating it to favor, at the same time, mental and manual improvement.

We put into the hands of the child a piece of soft wood to be whittled to certain marks, where the new surfaces created by this action will represent some known form or objects. Soon we dispense with the marks on the rough wood, and give only a pattern to be copied; and later we order such a form to be drawn from the mere idea our command impresses in his sensorium. To the knife succeeds the chisel, the hatchet, the straight or curved saw; the hammer which plants nails in rows representing some delineations; the pin doing the same work more delicately on paper; the needle with colored thread drawing on white muslin nearly like a pencil, etc.

The scissors are among our favorite instruments. Patterns of card or wood are given, and their likeness cut out from rags or newspapers: firstly, by application of the pattern on the paper; secondly, by the standing of the pattern in front of the child; thirdly, by its mere presentation to the sight and withdrawal; and fourthly, by the nomination of the shape that is to be reproduced from the image evoked by the command.

It is very important not to confine these exercises to individual teaching any more than is necessary for their strict understanding. This understanding once acquired, must be carried into group exercises of two or three children at first, of many more afterwards, because when close attention is not so much needed, the healthy stimulus of competition must be taken advantage of. For every new progress to be made, we must give the child the advantage of concentration resulting from individual teaching; and for the confirmation of the same, give him the benefit of the expanded examples and incitements inherent to group teaching; the mind will be more bent on its object in the first, the hand will be freer and surer in the second.

There is no end to these exercises in drawing, which prepares the head as well as the hand for the realization of ideal types. When we consider that among men there is not one in a thousand who can use his hands to represent correctly a meaning, and that in a trade like tailoring or millinery, excellence of draft is scarcely the attribute of one in a hundred, we are astonished that the lessons of substantial drawing taught to the idiots have not yet been carried into the public schools, where they could fill up the tedious intervals of book-learning. How many young women and men would like to exchange the knowledge of the height of the highest peaks on earth or moon against the skill of cutting in paper, or modelling in wax, the new ideas which daily die unshaped in their minds, for want of power of realization by their hands.

This ability to represent ideas by solid drafting is so natural to some idiots, that among them and among cretins are found excellent draftsmen, either in the general sense, or in some specialty. But without aiming at such superiority for the bulk of our children, we shall be contented if we can bring their hands to the point of expressing some simple ideas of form; and even if only partially successful in this intellectual attainment, we have given to their hands the firmness and the precision necessary to draw and to write.

Then, and not before, we can put with confidence a pencil in the hand of our pupil, which he will seize like us, with the understanding and the will of making something come out of it by imitation at first. He puts his hand on the black-

board armed with the chalk as we place ours; his eye looking at us and at the board alternately, as if asking for a command; this is given. We trace a line, neat, straight, in a precise direction; he does the same. We trace a second, a third, a fourth, he also; he imitates all our movements; the chalk in his fingers leaves the trace of these movements: that is the imitatory drawing on the part of the child. On our part, what must it be? The successive production of simple, straight lines in combinations which imply simple relations between them; relations which will soon give to this material imitation an intellectual meaning.

To this effect we create the lines, all but the first, which must be a horizontal or a vertical, in relation with others. For instance, a vertical line being laid, we start one, two, or three horizontal ones from it, sometimes from right to left, sometimes from left to right. Parallels must always be supported in this wise; and oblique lines cannot be taught before the two preceding are well executed to support the oblique at its extremities, forming a triangle; and soon our pupil is unconsciously drawing quite complicated figures out of these connected straight lines. But before this exercise passes from the domain of attentive imitation to inattentive routine, we make two of these connected lines at once; the child must do the same; we make a combination of three lines; he must execute it similarly as a whole. After this we draw a combination of lines, we show it to the child, we efface it, and he must reproduce it by his sole power of imaginative memory.

At a certain stage of these exercises, which can be better appreciated in practice for each child than in theory for all of them, the knowledge of the curved line is to be introduced. This must take place when the straight one has acquired sufficient correctness to be above possible confusion. We teach the curves in various ways. As if it were nothing more than a harmonious deviation of the straight line, we support both ends of the former on the ends of the latter. We try to excite the perception of the undulations inherent to all curves by repeated examples of the same. When the child is called to draw curves, numerous copies of these lines are laid before his sight on the board, and under the appreciation

of his touch in solid figures. But when the difficulty seems to rest more with the mechanism of drawing than with its understanding, we overcome that difficulty by making the child draw curves between two circles, traced or even solid, one inside of the other, five or six inches apart, leaving between them a space for the child to wind up his curves like an endless thread. Considering ourself or the child like a compass, whose fixed branch is the body, whose movable branch is the arm, we and he soon trace within those two limiting circles perfect curves. Indeed, he succeeds so well that before long we have to put him to the practice of the straight lines again, for fear that he should curve after this every line he draws. When these two elements of drawing, the right and curved lines, are well understood separately, they are used in combination to produce an unlimited variety of figures, among which the representation of our letters has appeared more than once; so that the child writes already by imitation without suspecting it.

At this period the illimited and rather fantastic drawing by imitation is set aside, long enough to repress its unmeaning exuberance, but not enough to let the hand and sight forget their quickness at it. We set the child to draw letters after us, each letter as a whole, without analyzing its parts; and when he has written a number of them, we show to him the like printed, and name them, so that he could name them himself. After we have written, compared, and named a few groups of them in a certain order, we take care to use every ingenuity that our mind can suggest to vary that order, for fear that lazy memory should attach the idea or the name of the letters, not to their forms, but to the place they occupy. It is incredible how many ordinary children fall into that mistaken application of memotechny, caused by exaggerated reliance on localization.

Contrarily to school practice, and agreeably to nature, our letters are to be written before being read. But soon both exercises are mingled together, unless for some special object we effect a momentary separation, easily detected in the following exposition.

Our method proper of teaching writing and reading does not differ from what has been previously said; we take advantage

here of differences, there of analogies, in form as well as in sound, to enforce the meaning of each by its correlative: in this respect our training is, not so much one of memory, as one of comparison. The instruments of the method are many. We have seen the best of all in operation; it is the hand, creating its own reading matter. But we shall use concurrently the following appliances, with others too numerous to mention.

We use two alphabets, one solid, the other printed; the first adapting itself to the shape of the second, the second on cards, easily placed or displaced, on a frame in columns, in groups, or scattered. The very lowest beginners when they have distinguished a circle from a square, can be put to this alphabet. We proceed in this wise:

The child is placed before our alphabet-board; we put before him the three letters *I, O, A*, in relief, and the same printed on cards are set in the board. We give him the solid *I*, at the same time that we name it, to be placed on the painted one. He may either let it drop, or put it on another printed letter, or put it on the proper letter, but improperly, or he may superpose it correctly, in which latter case the exercise is continued without interruption. The failures above referred to are corrected: the first by making him pick up the dropped letter till he puts it down in its place rationally and willingly; the second by ourselves covering severally each printed letter with its solid similar, to show him well the *modus operandi*; the third by patiently correcting the wrong superpositions; and better yet, by directing and teaching gently with our hands, his fingers to do that correction. At every movement of his or of ours, we have been naming with emphasis the letter moved. All the letters have been presented in series formed in view of apposing their difference and analogy of form; as *L* to *Q* by contrast; *O* to *Q* by similarity, etc.

Without leaving to these actions and new impressions of difference and analogy of form, the time to be effaced, we change the order of the solid letters on the table, and of the printed ones on the board, and we ask him for the solid *O*; which, being given by the child, we ourselves carefully superpose to the printed one. Then again changing the order of the two series of letters, we ask for *A*, for *D*, for *O*, again

and again till he gives them without mistake. When the child is mute and not deaf, our teaching of reading cannot go farther. Otherwise at this time we begin to point out one of the three letters; he names it, and pairs it with its like. This is only passive reading, would suggest the critic. Yes, mostly or nearly so. But is not this quasi-passivity an improvement on not reading at all; and cannot it be made the beginning of spontaneous reading? That is the question. All our present training tends to that result.

There is no necessity of following this plan here farther than the letters; nor of describing the various reading-machines which may be found in all class-rooms, and are used once in a while when their peculiar ingenuity meets the peculiar difficulties of a case of idiocy. The alphabet above described would not itself deserve to be recollected if its virtue were limited to the teaching of reading. Its specific value resides in the power of giving accuracy to the sight; its letters being presented by our method to this sense in all their relations of analogy and difference of shape, with this special object in view.

The small cards, bearers of a single syllable or word; the large cards showing whole series of the same, monosyllables in columns, or scattered in various orders, are more practical for reading. Those we used twenty-eight years ago could not be found anywhere, and were of our own manufacture; images corresponding to them were printed expressly for our children by the kindness of a friend; previous to 1840 there was no such thing that we were acquainted with. These cards have since spread everywhere; and images for children are plenty, if not always appropriate to reading and representation lessons. Nevertheless since so many years the method and its means and instruments have progressed in skilful hands.

Confining ourselves at first to individual teaching, we use the small cards with a monosyllable or short word on each, as letters have been in our alphabet for passive lessons in the beginning, for active reading with speech as soon as we can, always observing the rule of changing frequently the order of situation, and nomination as well. Exactly in the same man-

ner, the teaching of polysyllabic words follow that of the monosyllabic; this is the rational progression.

But, considering that the method of Jacotot, introduced into the United States by R. W. Emerson, and into the N. Y. State Asylum for Idiots by Dr. Wilbur, disregards the teaching of the alphabet as introductory to reading, and is in successful application in Syracuse, we would not have insisted upon the necessity of maintaining the old divisions were it not that their slowness in teaching to read does not impede nor diminish their importance as instruments of acuteness, to give precision to the sight. And as our fundamental object is not so much the teaching of one thing or of another, as the furtherance of each function and its utmost elevation in the rank of intellectual power, we have kept the old series of comparisons elicited from the letters and monosyllables as one of our best sensorial exercises. Otherwise, subsequently to the demonstration of the practice of Syracuse, reading is taught first as last by words. The word written is read, the word pronounced is written; the speech flies like the thought, writing immobilizes and perpetuates both.

Before proceeding farther we resume the exercises involved in reading. Cries have been converted by music into voices; articulation was derived from personal imitation concentrated in the organs of speech by mimicry; speech was treated as a combination of voice and articulation enforced by wants; writing was deduced from objective imitation; reading was the result of the combination of both speech and writing; letters are taught only as a study of contrast and analogy between their shapes or between their sounds; reading begins by words, each word having a shape or configuration, a name, and a meaning: hence solidarity is established between writing, reading, speaking, and soon understanding; so that the learning of one of them carries with it the knowledge of all. Written words are presented according to their difference or analogy of form; the teacher names them and the child points them out or writes them. Words pronounced by the teacher are written by the child; series of words are formed according to certain similarity or difference in their letters; other series are formed according to certain difference and analogy in their sounds when spoken. We said every word has a

meaning; to write and to read implies the understanding of that meaning; everything short of it is an imposition by the teacher, or an infirmity of the pupil: let us remember this, since we shall presently begin to teach more especially reading proper.

Words such as *bread, apple, book*, are put on cards before the child, and read by us aloud. Their order is changed, they are read again, and the child is invited to put his index upon each word named. The order of the position of the words and of their nomination is alternated at each turn, so that he can derive no remembrance from place or series; but must receive his ideas from the word itself. When they are named, the very objects, bread, apple, and book, are placed on the table in presence of their printed or written names, and are pronounced also in this manner: 1st. We say "*bread*," he must show the bread and appose it to its written name. 2d. We show a piece of bread, he must say "*bread*," and put the word bread on the piece. 3d. We show him the written name, he must show us the piece and give the name, etc.

When one of these three names is known, we put a new one in its place in that series, or we form entirely new series. When the object itself cannot be procured, its image will do even if imperfect; for it is wonderful how the power of imagining of children, even of idiots, soars above our feeble power of imagery. This juxtaposition or even identification of the three, four, or five forms of things, *i. e.*, their names written, printed and pronounced, their images printed and carved, and their own selves in substance, such are the forcible instruments by which the first ideas may be forced through the senses into the mind. Thus let us open to our pupil, by reading, the possession of everything which comes within the range of his prehension and comprehension; nature is his book, and his fingers are the printers.

On this capital point let us acknowledge that we are too prone to continue farther than is necessary the process of passive teaching required at the outset. We too often act or speak when the child might have acted or spoken himself if we had more insisted upon his doing it; given him a little time instead of hurrying; supported his hesitation instead of prompting him; and given no hint but a kind,

encouraging look; this warning cannot be too strongly impressed, neither the next. This is against the teaching *per absurdum*, favorite with professors and transferred into the Institution by our teacher, unsuspecting its bad influence. She spreads before her pupil a dozen of words on cards, and pointing with her finger to the word *mother*, for instance, if the child does not make it out and remains silent, she points to it again, saying, "What is that? Is it father?" and the child will very likely mutter the word *father*, to the great mortification of his teacher. But the apparent mischief is only a particle of the real one; the error is to be, and is corrected; the child will read the word *mother*; but who will give him back the trust that he had in his teacher previous to that false nomination? Henceforth, each time that she explains or affirms anything to him, he will look and listen suspiciously to know if there be not a snare where the good girl puts her most candid interpretation; distrust has sneaked in where confidence should have reigned; let us be candid with our simple children, if we want to teach them not reading alone, but truthfulness.

Next to this active, but close and attentive reading of the individual child, is the other, off-hand and rotatory, in which a written word passes from hand to hand, and is pronounced successively aloud. Though this is incontestably a reading lesson, it stimulates more the function of the voice to read aloud than that of the sight to read attentively. To make it effective it must go rapidly on, and emit by the stimulus of example a large volume of voices exciting one another; if well conducted, the children are particularly delighted with it.

Individual and group reading must be alternated, beginning with the first. Individual reading may be more insisted upon in cool, mild weather, and in the morning when attention causes no effort, and is not exhausted; on stormy days and in the afternoon, dulness is prevented from settling down upon the class-room by group teachings: where a child alone would but express himself languidly, children will support each other in vocal action.

But in reading as in all intellectual operations which take place immediately through the senses, we have to distinguish

for the perfection of the teaching, the function from the faculty. This temporary analysis favors the development of the two aspects of the same capacity. By striving to give at the start correct perception through a sense, we insure correct impressions to the sensorium, impressions which will be the premises of sound judgment for the mind. What is called error, scarcely ever depends upon false conclusions of the intellect, but mostly on false premises gotten from incorrect perceptions; so that the faculty of judging is not so often the culprit, as is the function of observation; what is badly seen is wrongly judged of; and our future is too often the stake we pay for the error of our senses. It is nearly certain that the good though limited common sense shown by the idiots educated since more than twenty years, must be to a great extent attributed to the particular pains taken to give them correct perceptions, and consequent ideas, through the physiological method, particularly in reading.

We come now to the subject-matter of reading. Though the subject of reading lessons must be of interest to the child, it must not be so familiar, except at the outset, as to lead him, by association, to the utterance of words not at the time before his eyes; for in this train imagination, memory, or desire would substitute their objects to the reading matter.

On the other hand, the subject of the reading must not be too much above the comprehension and the habits of the mind to be taught, otherwise the lesson, besides its mechanical object, would proffer no stimulus, through curiosity, to intelligence.

But if it is difficult to choose reading-matter fitted to ordinary children's minds, how much more difficult it must be for idiots. Aware of this difficulty, in the first lessons in reading, we have been confining our teaching to persons, objects, and feelings strictly appreciable by the idiot. His reading has been one of nomination, whose series begins at the point of comprehension where we find him every morning, ending soon where he ceases to understand. Inside of that range, we make him nominate by writing, reading, and spontaneous appellation everything that he can comprehend; and we treat him, in respect to the identity of knowledge with nomination, as our first father was treated. "The Lord

God formed every beast of the field, and every fowl of the air, and brought them unto Adam to see what he would call them; and whatsoever Adam called every living creature, that was the name thereof."—Genesis ii:19. Therefore, *ab initio*, there has been no presentation of new objects, *i. e.* discovery, without instant nomination; no nomination which was not simultaneous with discovery. In the same spirit of identity, whatsoever we name a new object, when first presenting it to an idiot, that is for him the name thereof. He had the perception of the object, we give him its name; and the correlation of both abides in his mind as identification of the image and name, elementary idea or notion.

Such is the teaching of nomination by writing, reading, and speaking, which has arrested us so long; and which will be terminated when we shall know the name of everything that is, and is to be.

Trusting to the biblical narrative farther, we see that our parents were not instructed as to the qualities of things, but permitted to appreciate them all, except those of a single tree, of which they were forbidden to eat under penalty of death. Whatever has been the cost of their transgression, henceforth every generation, distrusting past experience, wants to appreciate the qualities of things with its own instruments of perception; and observation, not trust, became the foundation of all Science. The idiot, if he can only move about, is no more ready to rest satisfied than his mother was. If we put a pippin or a crabapple before him, tell him which is sweet and which is sour, he will not *know* it till he has bitten at both; that is Knowledge. At the present point of the training, we must take advantage of this natural instinct, and bend all our efforts to give accuracy to the appreciative capabilities of our pupil. The notion, or knowledge of identity of things, given with the name, like a baptism, suffices but an instant to human curiosity. The lowest idiot is not content with distinguishing a round or a square; he wants to touch it, or lick it, to discover if it be besides rough or sweet; in fact, if it has other qualities than those of shape. Can we shut our eyes to this lesson; and must we not try, after having taught the identification by nomination, to teach

the appreciation of properties by a systematic study of qualities?

The qualities to be studied mostly in reading are of different orders. Those perceived in our previous gymnastics of the senses, particularly the pleasant ones, may be first employed, but not indulged in, longer than necessary to fashion the analytical power of the child. Contrarily, we reserve our absolute exclusion for the qualifications founded upon would-be science, and definitions more Greek than sensible. They abound in books written to spread the otherwise excellent system of object lessons. The definition of the horse reproduced by Dickens in "Hard Times," to show how idiots might be made in England and elsewhere, would correct this, if pedantry could be cured.

In object lessons as practised for idiots since 1837, the intellectual and moral qualities and bearings have always been made prominent above the more physical properties of objects. This has been insisted upon in our books and practice for nearly thirty years, as elevating the character of the training and preparing the child for the moralities as well as for the materialities of life. After seeing how animals enjoy hours of nature's harmonies, who could name the brute which does not see in the grass anything more than food; and after seeing the look of a calf at his mother, think that it loves her only for her milk? Material education alone can make a child see only the "old man" in his father coming home with the provisions earned by his day's labor; and the "old woman" in the worn-out creature who has watched him by night, worked for him by day, till her heart alone is beautiful. He is not a teacher who cannot make the most material fact transude its morality, as the almond does its oil under intelligent and warm pressure. He is a teacher who cannot see a pod of peas without opening it by its spiritual articulation, letting out of it as much food for the mind of his children as there was for the body in the seven loaves and fishes.

If we insist so much upon the moral turn to be given to the part occupied by the system of object lessons, or qualification lessons in our method, we shall insist not the less upon our disavowing all paternity of this same system. We found it working in the hands of Itard. Pestalozzi applied

it at the suggestion of Jean Paul Richter, who might have been its originator if he had not read of it in Rousseau. This is the simple truth about the origin of the object system which could not be found in the "Home and Colonial Schools" of England, nor in Oswego prior to its application at Bicêtre and Syracuse. In our estimation, founded upon personal practice, the object lesson, or to speak more correctly, the qualification lesson, derives its most important advantages from its degree of idealization. In the hands of teachers who feel nothing but matter, it is a very lowering instrument; in those of a teacher who loves to disengage an idea from its husk, it is an effulgent means of elevation. Who could tell the difference between the child taught to remember the names of the ultimate substances contained in a vegetable, and the one taught to produce it; or between one taught to produce it for the satisfaction of his own appetite, and another doing the same for the support of children more destitute than himself.

One of the properties of things is to be in isolation or in collection; and in virtue of the law of contrast, it is impossible for us to feel with any of our senses any one thing alone; one is felt because some other thing is felt as being or not being next to it. The first notion of *ego* implies the existence of a *non ego*; these are complimentary terms, numerically speaking, one and two. We cannot compare two terms without finding their comparison, third term which makes three; and from the binary and trinary combinations issue mathematics.

The greater number of idiots cannot count three, though among them, or more properly speaking among imbeciles, are found children wonderfully skilled in the mechanical arrangement of figures and in calculations of various sorts. This automatic genius does not belong to them as a class, nor imply in its rare possessors any susceptibility to general improvement. We teach idiots numeration with objects and qualities more than with figures; and cyphering with both; fractions in particular are all substantiated. But between the extreme of simpleton mathematicians and the majority of idiots who realize only very limited combinations of numbers, children are found whose idiocy being due to deficiency of perception more than of understanding proper, take in the

course of their training a healthy mental growth, capable of being applied to many objects of learning, mathematics among others. These children are easily distinguished from puny prodigies by a general, not a special adaptation of their newly acquired faculties. They were affected with extensive paralysis and contractures; or deprived from birth of steadiness of touch, or sight, or of hearing; or simply they were arrested in their development by superficial idiocy. One of our pupils in the hospital of the "*Incurables*," in 1842, *M.*, and *Nattie* and *Willie* in the New York State Asylum, all three very degraded before admission, proved to be of that class. When the impediments to their perceptions were removed, their minds shone brightly, the more so if we take into account the effect of their incapacitation from infancy. These children are worse treated by their infirmities than others, because they seem conscious of the impediment which keeps them down. They deserve, if possible, more care and judicious training than any other class; unfortunately it is too easy to leave them below the point of their natural aspirations, because the means of intellectual communication with them are difficult to establish and painful to sustain. On the other hand it is too tempting to develop in them, as in show-boys, the power of mathematics, of music, or of mechanics, to make them *stars* among the clouds of idiocy at the expense of the even and useful perfecting of their general capacity.

Concurrently with being made familiar with ideas of names, qualifications, and numbers, idiots need to receive a distinct idea of what actions mean. Men and things are constantly connected and disconnected by actions; and we express these actions by verbs. If one child does not understand the meaning of the grammatical verb we can make him understand action by ours or his own. For instance we have an idiot and an apple before us. We write the name of the child and the word apple on the black-board, leaving some room between the two words, and we put the child near enough to the apple to enable him to act in relation with it. Then we write between the two words the verb "take," and he takes the apple. We successively write, "let go," "roll," "raise," etc.; the child does with the apple all the actions indicated by these written

and changing verbs. Then one idiot writes the verbs and another does the actions, always establishing all the possible associations between the subject and the object, by the interference of as many verbs as possible, and of as many children as we can, to render the exercise lively and active without confusion.

The circle of these actions is much extended as soon as the pupil is able to understand the relations established by prepositions. No illustrations could do it more felicitously than those engraved in Sadler's "*Partique de la Langue Française.*" This simple woodcut, expressing the relative situation of birds in connection with a cage, was pointed out to us by Dr. Wilbur as the best means of teaching the preposition to idiots, and we have no doubt that he has by this time realized, on a large scale, the miniature teaching of prepositions which pleased us so much in that book. To teach this part of speech in our old way, to appropriate words, written on the black-board, are connected with successive prepositions, each one expressing a relation that the child must establish, and which is written, as was done previously for the verb.

Pronouns are to be substituted for nouns, and articles for numbers as often as necessary to their comprehension. Participles are nothing but adjectives, and treated practically as such. Adverbs are another sort of adjectives applied to verbs. Interjections are taught practically by transferring to the black-board those which come out naturally from the chest. Interrogations are understood by being answered. In these matters the danger is not to teach too little, but too much; the want of comprehension being worse than absolute ignorance. We are, besides, under no obligation to go beyond the limits of elementary education. Even at the happy time when our children enter into the conventionalities of common life, and of primary or classical education, nothing compels us to follow them in their new career, but with our best wishes, and the founded expectation that ordinary teachers, for ordinary teaching, will prove more competent than otherwise.

Moreover, if we have done elevating the functions to the intellectual excellencies of faculties, we have not yet finished educating the faculties as if they were simple functions.

Accordingly, we mean for the present to call attention to the training of the two most general faculties—Memory and Imagination.

It is evident that whatever pains we take, and whatever method we employ to teach idiots, our lessons would leave but a fugitive impression without the help of memory. This faculty is limited, but not perverted, in idiots as it is in some bright children, who assert in good faith things which could never have happened. If idiots ever told what was not true, it had been imposed upon their honesty; their lie was the earnest homage of their truthfulness. It is quite common to find among them memory restricted to some order of the faculties, such as musical imitation, counting, mechanics. These one-sided idiots may be taught almost anything in the line of their favorite recollection, but nearly nothing else. Some of them, for instance, will learn from well-meaning but unthinking attendants, long pieces of poetry, the names of our Presidents, of all kingdoms, etc., whilst they cannot say a word of themselves, nor remember what they have eaten for dinner, nor answer a question otherwise than by repeating the final word of it; but among these diversities there is deficiency, no error. Consequently we have to develop here or there, more or less, but not to redress this faculty.

Previously, we have not instituted any special training for the development of memory; but in all our exercises, the introduction of the memotechnic element could easily be perceived; for we were constantly presenting and representing, comparing and reconsidering, inducing and deducing, impressing and provoking expressions; making sure, by all means, that the impressions were received with fecund associations; and also that besides leaving their mark in the sensorium, they might be evoked at any time when wanted. This was no memory by rote which brightens an exhibition, but was our steady support from one progress to another. Nevertheless, whatever may have been the stringency with which we enforced these incidental impressions and evocations, they had not the pointedness of purpose which is necessary when we want to attain a special object, and which could only be obtained by special modes of training.

When we wish to cultivate the memory by some direct process we must first choose the remembrance—matter most likely to please the child and to make an impression upon him; and secondly we must train the memory in its double aspect of perceiving and expressing the impressions: we must train both, at first, as if they were independent functions whose convergence produces later the complete faculty; as, truly, impressing and evoking past events or images are nothing else. We therefore bring the attention of the child to a class of facts or feelings in three circumstances—at the time when they take place, after they are accomplished, and at the time they are to represent themselves or to be reproduced by him. What he likes to eat, what he does with most pleasure, and by contrast what he dreads the most, are the proper objects of these first impressions: primary pabulum for recollection. We impress them by pairs, according to the association of feelings they may produce; later we graduate them according to progressions in ascending or descending series, a few or many at a time; we give a meaning to the formation of these series as well as to the simplest fact or image recollected; and we habituate the mind to remember, not for remembrance's sake but in view of some end to be accomplished thereby. By all means, all that we present our child to treasure in his memory at this period, must be something which he will have to do again, or whose moral or orderly suggestions shall have a bearing on his future conduct. Memory in this series becomes the inward monitor of actions, of daily habits, and of external life. In this line we must not be afraid to show some vulgarity. This order of recollections will bear on very low facts indeed. We have begun by asking our questions as if it were to the stomach; we interrogate the senses, and the lowest calls of Nature, if anything can be called low in her; we ask the feeling of cold, of pain, of fatigue; we put our questions to the quick; as when the hands nearly freeze, we ask what may keep them warm; the recollection of mittens or of a stove will suggest itself to the dullest mind. We insist particularly on leaving to the child strong memorial impressions of the value of time, money, food, fuel, clothing, light, home, labor; we make him tell and repeat all the associations of

these powers, with his own comfort and duties, with the happiness or misery of others. We keep him informed of the changes which occur in these matters by law, recurrences, or accidents. This is taught in private or in group, alternately in action, and by actions when possible; children are so sensible to examples taken from among themselves.

After having brought this class of commonplace and daily recollections to the working point till it begins to bear practically in the lives of the children, by governing their habits, we pass, if the growing intelligence of the pupil permit, as it generally does in due time, to a class of recollections, if not more useful, at least more elevated and far-reaching in their object. In the series we now leave theoretically behind, the retaining and combining of recollections was promoted by a natural desire of comfort, of order, of recurrence—was, in fact, synchronous with our animal appetites. Instinct was the main lever of memory, producing regular habits, etc. In the series we are abstractly entering now, for the first time, the gregarious or social element has overstepped the limits of the instinct. The outside world has effected a lodgment in that skull once the domain of the solitary I. The intellectual faculties, strengthened by external accretion through the senses, are no more subservient, but command, and now exact from them the nutriment necessary to convert the physical into moral impressions, and to develop the sense of kindness, of justice, of the beautiful and their kindred. At this point memory looks so different from what it is in most animals, or in men unfortunate enough to be shut up in natural idiocy, or in artificial imbecility by ignorance and egotism; it is so elevated and so much of a generalizer; it is so potent to reproduce images, even of the abstract, with the vividness of creation, that its name is henceforth imagination.

Imagination, like primordial memory, evokes, and to some extent may repulse feelings or images; but by a kind dispensation the image of our pleasure is more vivid and more easily evoked than that of our pains. That imagination, not only of what is called the lowest order of phenomena, but of the highest intellectual cast and abstraction, is the result of comparison between true sensations, is evident. Men of the

greatest imagination, like Homer and Milton, not only had observed immensely before their blindness, but that infirmity preventing the formation of new sceneries, permitted them to reproduce with more exactitude and vividness than other poets the wonderful images painted behind their cecity. On the other hand, persons congenitally blind cannot form images of what can only be perceived by the sight, nor congenital deaf mutes have ideas of sonority. And idiots who are, in the proportion of their native infirmity, deprived of sensations like the blind or the deaf, are altogether in the same proportion incapable of memory or imagination; but as soon as, and as much, as their senses begin to perceive, their mind begins to remember and to imagine. So the rule is, no ideas nor images without previous perception.

That idiots can be made to imagine as well as remember is proved by the rapid development and correctness, under a physiological training, of their aspirations for what is beautiful, right, and worth loving. It is imagination which teaches them to try to please us because they see our face lighted with hope and faith in their progress. It is imagination which makes them try new contacts, to receive new impressions, and compare these to the old ones. It is imagination which impels even the low idiot, once under training, to share his cake with another child and to look intensely, not at his mouth, but at his eye, to see in it the gleam of pleasure of which he wants his share as a reward. It is by favoring the creation and the recurrence of such impressions that intellectual wants are created. Soon the child's mind needs food as well as his body.

Considering the bearing of this part of the training, we must, as early as possible, cultivate the formation and expression of images, commencing as low as necessary, as we did for memory proper. Here pictures, recitations, dialogues, and animated narratives find their place; adding forms to facts, colors to forms, movement to the whole. And as imagination is not complete, since receiving impressions it does not return them, the idiot must be made to express his expressions as soon as his face and pantomime testify that he has been impressed. Henceforth let him receive and send back the images; as in reading, the words; as in the gymnasium,

the balancing-pole; double current, solidarity, which constitutes the I part of us.

If memory connects the past and the future in the present of a single individual, imagination connects the same with all the race and all time. In this way we conduct our children, some on the threshold, some on the proscenium, a few in the sanctuary of the unseen pantheon where everything which is, is as if it were not; and where everything which is no more, or is not yet, may be summoned into existence. From the feeling of pressure on the tactile organs which taught prehension, to our feelings of duty towards our pupils which taught them affection; from the distinction of the difference between a circle and a square, and that between affirmation and negation, or between right and wrong, we have followed a continuous path, beginning where the function awakes to the perception of simple notions, finishing where the faculties refuse to soar higher in the atmosphere of idealism.

Perception producing simple notion, faculty producing ideas more and more complex and abstract, are the extreme terms of the chain, beginning at the peripheric extremity of the nerves, ending in the hemispheres. Perceptions are acquired by the mind through the senses, not by the senses. This is proved anew every time a new sense is created, or an old one improved by some discovery such as spectacles, telescopes, microscopes, algebra, compasses, electrometers, etc. It is not that artificial sense which perceives, it is the mind through it. In our case, every time we have improved, even sometimes nearly created, the modes of perception of idiots, their mind has begun to perceive phenomena through their new and improved senses; and we have been enabled to conduct those impressions to the centre where they become idealized. In this manner all the senses natural or artificial, physical or moral, are doors to the various passages leading into the focus of impressions wherefrom radiates all expression. To facilitate the study, we distinguished the notions from the ideas as if they were two products of different functions; but for the sake of truth we leave them both what they are, the incipency and the conclusion of the operation

of a single function; the function of reflecting all we can of the world into our microcosm.

Thus education connects a small body with all bodies, a small intellect with the general laws of the universe, through specific instruments of perception.

This being the law of perception of phenomena it does not matter through which sense we perceive; the same operation being entirely from the mind, is always identical with itself; this law is nothing less than the principle of our physiological method of education.

Thence the law of evolution of the function of the senses ending in intellectual faculty, rules from the youngest child to the most encyclopædic nervous apparatus. A corollary law to this, is the mode of perception and idealization of the impressions according to certain conditions, conformable to the teachings of anatomy and physiology. One thing at a time, is the law of sensorial perception for inferior animals. As many things at a time as necessary to form a complete idea, is the law for the intellectual comprehension of man. In animals some senses are more perfect than in man, hence their sensations are more perfect than ours; nevertheless, theirs being received in singleness and registered without associations, cannot become ideas, because their notions acquired alone, live or die alone, incapable of fecundation; the lower animals are as far down as that.

But we cannot study the progress of sensoria and intellectual evolution without finding already animals inferior to mammalia which register their sensations and feelings in comparison with each other, and with a meaning attached to them. These animals must receive compared and comparable impressions, to be capable of combining them presently or hereafter, to form new judgments and determinations. The ant, the bee, the spider, the blue-fly and many more, give evidence of their power of idealizing notions, and of the rationality of their determinations. But for the immense majority of animals, the rule seems to be one perception at a time, whose isolated notion is incapable of entering into collections of images, parents to ideas. Though every observation points to the probable issue of this difference between man and brutes as being only a gradation, whose lowest strata begin

lower than the corals, which know in what direction to build and propagate, and ends where man does not yet dare to aspire. However, few minds are prepared for this affirmation unless it could be supported by the following observation:

In the nervous apparatus of animals, the sensory ganglia are larger than the hemisphere in proportion to the development of their respective functions; sensorial perceptions being in them more extensive than the ideal products of comparison. On the contrary, in our human nervous system, the intellectual ganglia are larger than the sensorial ones in proportion to the predominance of the reflective and willed above the perceptive faculties.

The following remarks constitute the psychological corollary to this observation.

The motor of life in animals is mostly centripetal; the motor of life in man is mostly centrifugal. But how many uneducated, or viciously educated men display none but the ferocious centripetal power of the beast; while a dog shall affront death to defend his master, that master may work the ruin of twenty families to satisfy a single brute appetite; nevertheless, the motor in the beast is called instinct, in man soul. Well, we will say yes; instinct when a wild, uneducated, or uneducable stock; soul when engrafted by education and revelation. As a generality, however, animals have only a centripetal or individual life; men, educated and participating in the incessant revelation, have a social and centrifugal existence, also, being, feeling, thinking, in mankind, as mankind is, feels, and progresses in God. What can be done to a certain extent for brutes, may be done for idiots and their congeners; their life may be rendered more centrifugal, that is to say more social, by education.

True, this view of our subject and of our race would not deprive animals of some kind of soul. But our mind must have already become familiar with that sort of concessions; since women, Jews, peasants, Sudras, Parias, Indians, Negroes, imbeciles, insane, idiots, are not now denied a soul, as they were once by religious or civil ordinances. Nations have perished by the over-educating of a few; mankind can be improved only by the elevation of the lowest through educa-

tion and comfort, which substitute harmony to antagonism, and make all beings feel the unity of what circulates in all life.

Contrarily to the teachings of various mythologies of the brain, and with the disadvantage of working against the prevalent anthropological formula, we were obliged at the same time to use most of its terms; we have developed our child, not like a duality, nor like a trinity, nor like an illimited poly-entity, but as nearly as we could like a unit. It is true that the unity of the physiological training could not be gone through without concessions to the language of the day, nor to necessities of analysis, quite repugnant to the principle; it is true that we have been speaking of muscular, nervous, or sensorial functions, as of things as distinct for us as muscles, nerves, and bones are for the anatomist; but after a long struggle with these difficulties, psycho-physiology vindicated its rights against the feebleness of our understanding, and the mincing of our vocabularies.

We looked at the rather immovable, or ungovernable mass called an idiot with the faith that where the appearance displayed nothing but ill-organized matter, there was nothing but ill-circumstanced animus. In answer to that conviction, when we educated the muscles, contractibility responded to our bidding with a spark from volition; we exercised severally the senses, but an impression could not be made on their would-be material nature, without the impression taking its rank among the accumulated idealities; we were enlarging the chest, and new voices came out from it, expressing new ideas and feelings; we strengthened the hand, and it became the realizer of ideal creations and labor; we started imitation as a passive exercise, and it soon gave rise to all sorts of spontaneous actions; we caused pain and pleasure to be felt through the skin or the palate, and the idiot, in answer, tried to please by the exhibition of his new moral qualities: in fact, we could not touch a fibre of his, without receiving back the vibration of his all-souled instrument.

In opposition to this testimony of the unity of our nature given by idiots, since they receive a physiological education, might be arrayed the testimony of millions of children artificially developed by dualistic or other antagonistic systems;

as millions of ox and horse teams testified to the powerlessness of steam. The fact that dualism is not in our nature but in our sufferings, is self-evident. Average men who oppose everything, were compressed from birth in some kind of swaddling bands; those who abhor study were forced to it as to punishment; those who gormandize were starved; those who lie were brought to it by fear; those who hate labor have been reduced to work for others; those who covet were deprived; everywhere oppression creates the exogenous element of dualism. Of the two terms of "the house divided against itself," one is the right owner, the other is evidently the intruder. We have done away with the last in educating idiots, not by repression, which would have created it, but by ignoring it.

One of the earliest and most fatal antagonisms taught to a child is the forbidding of using his hands to ascertain the qualities of surrounding objects, of which his sight gives him but an imperfect notion, if it be not aided by the touch; and of breaking many things as well, to acquire the proper idea of solidity. The imbecility of parents in these matters has too often favored the growth of the evil spirit. The youngest child, when he begins to totter on his arched legs, goes about touching, handling, breaking everything. It is our duty to foster and direct that beautiful curiosity, to make it the regular channel for the acquisition of correct perceptions and tactile accuracy; as for breaking, it must be turned into the desire of preservation and the power of holding with the will; nothing is so simple, as the following example will demonstrate:

Once a very excitable child, eighteen months old, touching, breaking, throwing everything he could, seemed really ready, if he had been once punished for it, to become possessed by the old intruder; but it was not our plan. We bought unmatched *Sèvres* cups and Bohemia glasses, really splendid to look at, and served the child in one of them, after showing him the elegance of the pattern, the richness of the colors, everything which could please and attach him to the object. But he had no sooner drunk then he threw the glass away. Not a word was said, not a piece removed from where it fell; but the next time he was thirsty, we brought him where the

fragments lay, and let him feel more thirst before we could find another glass equally beautiful. Some more were broken in the same petulant spirit; but later, he slowly dropped one, when at the same time, he looked into our eyes to catch signs of anger. But there was none there, nor in the voice; only the composure and accent of pity for the child who could willingly incur such a loss. Since then, baby took good care of his cups and glasses, finer than ours; he taught his little fingers how to embrace with security the thin neck of one, the large body, or the diminutive handle of others. In practising these so varied handlings, his mind became saving and his hands a model of accuracy. |||

Now that the unity of our plan to connect all the functions and faculties in the unity of manhood, and into mankind, is fully exposed to view, we have only a few words to say about the unity of our apparently disconnected means and instruments of education.

Whatever we have been teaching, and whatever instruments and means we were employing for that object, our method proper has been founded upon one principle, comparison. All our efforts at making the child perceive, were aimed at comparing all his actions, comparisons; all our orders, comparisons; all his experiences, comparisons. That this principle, which necessitates at least two terms to produce an idea, is the physiological principle of education, might be demonstrated by the success of those who taught by it idiots otherwise uneducable. But as the retired institutions where these children are improved are not yet familiar to everybody, let us show, in the evidence given by ordinary children, that our method of physiological education is nature's own method of teaching mankind.

The new-born infant, sucking for the first time, is not satisfied by the breast that he cannot exhaust. Even so young, he does not live exclusively upon milk, but on knowledge too; for if we turn our eyes from the hand which helps his mouth in forcing out the milk, we see the other carefully studying with its two surfaces, not only the form of the opposite breast, but the deflections and distances between each; the firmness, elasticity, softness, and warmth of his new dominions; we see him following mostly, for the sake of accuracy, the convex

curves with the palm, and the concave surfaces with the back of his hand. After a few days, he knows all about it, and being less eager for knowledge, he moves his hands only to receive pleasant contacts from the touch of his mother's skin, or to go farther in search of new discoveries among the silk, cotton or woollen fabrics.

The little child, carried for the first time in a forest, is no sooner on his feet among nature's productions, than he exclaims, "Oh, the big trees! Oh, the small flowers! Oh, the little, little insects!" passing again and again from the tree to the moss, from the insect to the tree, till the whole comparison is registered with all its attributes. If the child had seen these things individually, and not collectively with their differences, when forgetting the isolated impression of each, he would have lost all of them, and nothing more would be left; but having registered with the perishable isolated images, the ideas and feelings resulting from their comparison, it does not matter much if the isolated images of the things have since been defaced or not; the image may be gone, but the idea of it once impressed is felt to this day and for ever with all its consequences of sylvan tastes, rural tendencies, and sensibility to the language of the earth.

A boy had grown to the age of six without paying any attention to size among men; perhaps he and his kin were of small size. He knew generally that some men were taller than others, but he thought nothing of it, nor deduced any ideas from it. However, being once introduced in a place of worship where a devout old king was expected, the attention of the child was riveted upon two immeasurable drummers, separated by a diminutive fife-boy, and his eyes, passing from the tall to the tiny musician, could hardly be led off from these extreme forms of humanity to look at the pale king as he stood in white and gold robes, kneeling in his white stuccoed chapel. The sound, so broad from the drums, so acute from the fife, strengthened, through audition, the former comparisons of proportions made *de visu*; and since, this simple and imposing pageant now stands in the mind of the man, matrix of all measurement, as the Egyptian Pylones of the measurement of the Nile.

These illustrations of the operations of the mind through three senses—the touch, the sight, the hearing, in children whose functions had not yet been distorted by arbitrary memotechnical teachings, show the nature of the physiological teaching to be, not the unity of object, but the rational comparison of objects, to be taught through any or all senses. The bird can see farther, the spider can hear better, the blue-fly can smell more accurately, the cat may feel more delicately with its velvet paw, than our children with their corresponding agents of sensation; but the beast's sensations, perfect as we suppose them to be, are only connected with a few instincts, are not connective among themselves nor with past images, and consequently soon die in their isolation, being incapable of forming new images and ideas by comparison, as they do in children.

We may take as an example of that difference, the effects produced by the fall of rain upon a child and a bird. It will hasten home both the bird and the child; but the flight of the former is prompted only by the instinct of security for itself or its young; and the course of the latter homeward will be accompanied, besides his present object relative to personal feeling, motherly injunctions, possibly penalties, etc., by ideas about rain as numerous as its dripping drops: rain will beautify the flower-garden; swell the stream in which he can swim, where his friend was drowned, etc.; these drops shall soon look like diamonds on the grass when the sun shines; the rain which fell upon him last winter was chilling; what a difference now; this is warm, it fumes on his jacket; warmer it could be inclosed in a boiler, move trains and ships, etc., etc. Thus loaded with comparisons, the boy reaches home later than the bird, but full of ideas induced by this rain. He may, in after years, forget this circumstance, but he will never forget the peculiar impressions and associations experienced and evoked in this first summer shower.

Children are our witnesses; unlike animals, they never perceive single, but compound phenomena; from sensational these become instantly idealized by comparison. Mere impressions, being compared, become ideas susceptible of combination, and of themselves producing any number of new ideas; of becoming indeed the mother of actions: for man cannot

execute anything that has not been previously born into his mind. Sensation perceived like a notion, notion fecundated to an idea realized in life itself, such is the unbroken spiral of our teaching, and through teaching, of our action on idiocy. From collecting the sparse powers of muscles and nerves disconnected by the absence of will, to the gathering of the faculties in the act of thinking, our progress has been a constant ascension on the steps leading from isolation to sociability.

Though much more might be said on this subject without doing its full justice, we leave it cheerfully at this unfinished stage, where the experience of others may be more proficient to complete it than ours.

PART III

MORAL TREATMENT

Long before physicians had conceived the plan of correcting the false ideas and feelings of a lunatic by purgatives, or the cranial depressions of an idiot by bleeding, Spain had produced several generations of monks who treated with the greatest success all kinds of mental diseases without drugs, by moral training alone. Certain regular labors, the performance of simple and assiduous duties, an enlightened and sovereign volition, watching constantly over the patients, such were the only remedies employed.

"We cure almost all our lunatics," said the good fathers, "except the nobles, who would think themselves dishonored by working with their hands." This tradition, handed down to us by Pinel, is corroborated by the testimony of Leuret on the present revival of moral treatment: "See what takes place in idiots. There is nearly always in their brain a vice, acquired or congenital. Is it by physical agents or by education that one succeeds in giving some development to their intelligence? The medical agents would be of no use; nobody thinks any more of using them; but the moral agencies, employed with discrimination and tenacity, produce, on the contrary, in the intelligence and passions of idiots changes almost marvellous. We infer from this that even if there were a true alteration in the brains of the insane, the moral treatment would yet offer the best chances of success."*

We need more the support of Leuret's authority than he needed ours when, being a daily witness to our efforts, he was pleased to express in these terms his approbation of the part of our method we are going to expose.

The moral treatment is the systematic action of a will upon another, in view of its improvement; in view for an idiot, of his socialization. It takes possession of him from his entrance in to his exit from the institution; from his opening to his shutting his eyes; from his acts of animal life to the exercise of his intellectual faculties. It gives a social meaning,

* Leuret, *Du Traitement Moral de la Folie*. Paris: 1840.

a moral bearing to everything about him. The influences destined to give moral impulse to the very life of the idiot come upon him from prearranged circumstances, from prepared association with his fellows, and, above all, directly from the superior will which plans and directs the whole treatment. We have seen, more than once, in the preceding part, how the moral treatment was blended with the physiological training. We shall see very soon the same element acting like a leaven in labors, occupations, pleasures, or claiming its control over food, clothing, hygiene, or medical attendance. We find it everywhere; and it would be writing the same book over again from another stand-point to describe the working of this training in all parts of the treatment. To be brief, we will expose it only as an abstract power, leaving the commentaries and applications to be determined by circumstances.

The discipline or moral government of idiots, without differing absolutely from that of other children, has its peculiarities. A good many idiots cannot understand nor follow a private discipline expressed by orders, who will follow the general discipline of a school, by a sort of intuition, as if knowingly; they seem to comprehend it through contact with other children. Contrarily, owing to the isolation of idiocy, and to a want of concert among idiots, the mass of them, as such, is on an average refractory to any new impression; small groups receive it better, and individuals best of all. So that individual discipline is at first resorted to, till the group, and then the mass, are familiar with the regular movement of the school.

To enforce, exact, promote, induce, encourage, lead, sustain obedience in idiots, severity would be cruelty. Physical correction is useless, unless blended with the eradication of the wrong. Punishment is to be avoided till it be certain that the understanding of the wrong preceded its commission. Repression cannot be avoided; let it be employed in its mildest forms. A child could not be forced to stand motionless, even were his legs bound, who remains perfectly still in a circle traced with chalk around his feet. The anger of another changes into repentance at the sight of his name written on that part of the black-board reserved for bad records. Indeed,

the means of repression are what the intelligence and feelings of the teacher make them.

Recompenses may be given like punishments; that is to say, provided their meaning be understood. If not, they speak to the sight, stomach, nostrils, etc., but not to the moral sense, and become in regard to it instruments of perversion.

Caresses are of great power for good or evil, and must be reserved as rewards and stimuli. But injudiciously applied, they break the continuity of commenced efforts, cause a diversion from the task and a relaxation of the will; it gives the child an exaggerated idea of his worth, or of that of his doings, and profoundly spoils his moral nature; moreover, a number of children cannot be caressed at all without danger, owing to certain nervous anomalies. Great discretion and reserve are required from teachers and others in this respect, for the moral government of idiots. Here once more we see how difficult it is to fill the place of a mother; in her absence caresses, as an incentive to progress, are not pettings, and less the selection of pets.

Moral education is nothing else than a revelation; as such, its teaching to children by books, or even by common language, would be a complete failure; whereas it is accomplished quite easily, through moral agencies whose simultaneity is the *chef d'oeuvre* of the art of human training. Though these moral influences proceed mostly from the ruling will of the master, we must distinguish those which emanate immediately from his own self, from those which are the result of intermediate agencies, prepared by him, or not. These agencies will first attract our attention as putting the child in the best external conditions to become spontaneous and willed afterwards.

Whatever we want a child to do, and whatever might be otherwise our special teaching to that effect, there are certain moral conditions as necessary to our success as the technical ones; those we shall at once consider. These conditions have reference to time, place, and surroundings. The time to command an action, or incite to it, must be not only favorable, but the most opportune: as for instance, the exercise of nomination of food must not only take place at meal times, but before the appetite begins to be satisfied; or the

appreciation of temperature must not be made at different periods of the year, but at those when the child will best appreciate heat, cold, dryness, moisture, etc. The places where lessons are to be taken must be not only convenient, but exactly appropriate; thus attention need not be called to any indifferent object in front of any opening towards a fine natural scenery; nor comparison of color tried when the smell is strongly attracted by odors; thus, again, solicitations to activity must be made where there is room enough for action; speech provoked where its effect can be appreciated; the first commands imposed where there can be no escape from obedience. The surrounding circumstances are to be made equally instrumental to our purpose: light or darkness, solitude or multitude, movement or immobility, silence or sounds, etc., are to be chosen or prepared in view of their moral influence on the actions demanded of the idiot. We must remember that our teaching how to do a thing, is to him of no practical value if we do not place him in the best circumstances to accomplish it; as to put him among other children doing the same thing; to let him see them do it without attempting it himself; to make him imitate the nearest thing to the one wished of him; to let him desire what we desire him to do, etc. The accomplishment of these objects, and particularly of the last, which implies the fostering of new volition, will be partly realized by intelligent disposition of time, place, and scenery, but will be as often due to the influence that the children will exercise among themselves, if philosophically managed.

This moral training of the children, one by many, several by one, all by all, is one of the main springs of the present part of our task. What we cannot command, another child will incite; what we cannot explain to a child, he will imitate from another; what a group cannot do after our command, will be done after the example of a small child. However incapable we consider idiots, they can be made to act efficiently one upon another, if we know how to appose the vivacious to the immobile, the loquacious to the mute, the imitative to the careless, the affectionate to the indifferent. This apposition of children in view of their reciprocal advancement, ought to take place in various ways, according to the

object desired; by groups of equals, by series of one capable and several incapable, and *vice versâ*, by pairs of two extremes in aptitude, by one commanding the other from outside their ranks, by several correcting the vicious expressions or attitude of the whole files, etc. In these multiform operations of the simultaneous training, the child who teaches another in a certain sense teaches himself more by the reflex action of his will upon his own understanding; though it is quite certain, besides, that very many things are taught from child to child that we could not at all, or not so well inculcate ourselves.

The same remark pertains in relation to the class of persons who really and motherly attend to idiots. Though generally quite illiterate, some of these attendants soon develop in the exercise of their functions moral powers which many educated persons cannot equal, because sociability, not learning, gives it; and though this power is susceptible of being educated, as it is even in idiots, it looks more like a gift than like an intellectual faculty. Whenever that gift manifests, itself, by which a being has an ascendancy over another, we recognize in it, in all its shapes and transformations, the qualification for the exercise of moral training; we accept its concurrence, whether perfected by education or not, because it qualifies its possessor to work with us in some capacity or another; whenever found, it is the superior goodwill ready to elevate the inferior one.

The relations which this power establishes are those of authority to obedience. We are aware that these relations are in a very confused state, as well in schools as in society. Authority is assumed and denied; obedience is exacted and refused, on grounds so opposite that conciliation seems impossible. However, putting aside extreme theories, authority is, like obedience, a mere function, whose existence is provoked by corresponding incapacities, ceases when its object is accomplished, and is no more inherent to the individual who happens to exercise it, than his coat is adherent to his cellular tissue. This mild view of social equality and of functional inequality fits exactly the exigencies of the moral treatment of idiots.

Our authority over them does not derive from our superiority, but from the desire of elevating them to our standard. Hence, we do not make them feel authority like a pressure, nor obedience like a subjection; but we give them every opportunity of exercising the first themselves in the limits of their aptitude, as well as of acting under the reflex impulse of the second, whenever their spontaneous impulse is yet deficient. When we try to socialize the isolated idiot, we do not mean to teach him reading, music, etc.; we mean to give him the sense and the power of establishing in the limits of his capacity, social relations, *rappports sociaux*, whose ever-changing scale is expressed by the two fixed words, rights and duties. Duties being less imperative, in an uneducated conscience, than rights, we have often to enforce the former to a certain extent by unmitigated authority, as was done for mankind, till the child becomes conscious of the equivalence of these two terms: the right of one is the duty of all, the duty of one is the right of others. Idiocy being isolation, its victims are not expected to be carried, when already quite old, from their ambient vacancy into a world of contacts and associations, creating incessant rights and duties, without difficulty on the part of the teacher and suffering on their own. This struggle would hardly be noticed if the moral treatment were carried on by the parents from the beginning. But far from this; when an utter neglect does not prevail, a mawkish sensibility opposes itself to any effect at improvement: "The child is naturally miserable enough, do not contradict him," says the mother. And the child, as low as we can suppose him, takes heed of that sickly feeling, and will never do anything until he is kept for a long time away from this deleterious tenderness. We have seen idiots, after a year of obedience and contentment, relapse into their anti-social habits at the sudden reappearance of the weak-hearted person who once indulged their idiotic propensities, and the same children resume their orderly habits at her exit. But soon, for the most extreme cases, and always for ordinary ones, authority need not present itself in its historical features of absolutism, but assumes more tender forms as soon as it is firmly established.

Nevertheless, whatever may be its form, authority, to be obeyed, must command; in the varieties of its expression, and in their opportunity, resides a large part of the moral power of the commanding over the commanded. When we consider the qualities necessary to render commandment effective, we soon discover that those of speech do not come in the first rank; at least that its action must be preceded and corroborated by that of other qualities which enter for very little, if for anything, into ordinary language. Therefore it would be useless to proceed farther, without entering into a complete analysis of the elements of command, as it must be used with idiots. Leaving aside the disputable rank of importance of these elements, we shall simply present them as they come forth in reality.

The first conditions necessary to render command effective are lineaments and shape; the second, proportions and attitude. The lineaments of the face or its features, the shape of the body or its proportions, may offer or refuse their concurrence to command. The defects of the former are nearly irremediable; those of the latter may be corrected. It is thus that certain lineaments impress the human face with so deep an expression that no other can ever be substituted; or are so rigid that no intellectual or passionate meaning can pierce through their unmeaningness. Nearly the same thing occurs with the shape of the body and its proportions; some are only ludicrous, and cannot convey any command; others are set naturally in such attitudes of repose, quietness, or the like, as to counteract any command to action. These are only a few of the ways in which features, proportions, and attitude may impair the efficacy of authority. The exercise of these qualities requires a good organization, mobility of the parts, and a fair sensibility, easily controlled by the will: with these advantages, the face and body are ready to command.

Though the eyes are a part of the features, their office is so important that they are to be considered separately. The look is the passionate centre of the physiognomy; all the other parts coördinate their expression to its, unless skilfully contracted into a mendacious expression, which the eye can rarely imitate. The influence of this organ, as an instrument of moral training, cannot be overrated, whether we consider it

from the master's or from the pupil's side. For if the look of the former is alternately inquiring, pressing, exacting, encouraging, caressing, etc., the look of the latter is avoiding, opposed, submitted, irate, or grateful, borrowing its expressions from feelings incited by the former. To obtain this result, the master's look must have taken possession of the other, have steadily searched, penetrated, fixed, led it; and here the constant use of the look, already described in the physiological training, is found corroborated by its use in moral training, and *vice versâ*.

The influence of the limbs on the effectiveness of command is equally distinguishable from that of the body in their *ensemble*. The way in which we stand in front of a pupil is not indifferent; and our foothold tells pretty well the degree of our determination. In this respect the various positions of the legs, and consequently of the rest of the body, are very instructive. How many things our attitude alone will command. We can stand before an idiot so that he will remain quiet; we may stand by him so that he shall hasten his steps, or dignify his deportment, etc. The arms and hands are more powerful yet, at least for the command of special movements. The finger directs, averts, corrects, threatens; the hand excites, restrains, forwards, stops, puts down, nearly all expressions of activity. A waving of the hand cheers and encourages; a warning of the finger cuts down an incipient action; with its rise and fall it rules the tide of commanded or forbidden manifestations.

But how far is the easy, monotonous, inexpressive gesture, which hardly accentuates our ordinary language, from impressing the idiot, not only with our meaning but with our will. Gesture then must be subjected to a special education to acquire precision, correctness, quickness, cabundance and emphasis; to become capable of speaking of itself, or to complete language; and to assume the force and fluency of an oration that the eye shall follow in all its details as the ear follows a spoken one in its meanderings: on this condition gesture becomes one of our moral powers.

When the parts of the body, not only those studied above, but all fibres, are so harmonized for the mute act of command, there comes forth the speech. Not that speech is

necessarily commanding; like gesture, it is rarely so *per se*, and requires a good deal of art for its maturation. Taking away the language of conversation, inquiry, reply, narration, discourse, recitation, whose expressions are unfit for our object, what is left of ordinary speech to accomplish it? Very little, indeed; nothing but the potential capacity of speaking as few men ever do—not to be understood, but to be obeyed.

For idiots, this difference between the varieties of speech is deeper yet. Without selecting our illustration as far down as the children who do not pay any more attention to language than if they were deaf, we find the majority of them inattentive, unintelligent, and inobedient to common speech. This difficulty admonishes us that language, even as a means of communication, but more particularly as a mode of ascendancy, is to be heightened above its ordinary expressions to impress idiots. Voice and intonation, articulation and accent, rests and emphasis, are to be omitted, not as syllables following each other in a stream of uniform flow, but as musical notes on the superposed keys of the gamut. Purity of voice, variety of intonation, correctness of articulation, etc., would be expended in vain if they were not entirely adapted to the desired object, and besides, to the condition of the child at the time we address him; so that not only every word is to be invested with a different physiognomy in each command, but if the same command is to be repeated, each word of it must be accentuated at each repetition, according to the degree of attention previously paid, or supposed to be next given to it. In this manner, an order completely unintelligible, or unenforcible at a single command, will become understood and enforced after several repetitions, each one representing a forcible commentary of some of its parts, and all of them the whole of it. If this precept of commanding by words is too simple to be comprehended, we will exemplify it in this wise. Suppose the objects known, the master orders the child to put a book on the table. "Put this book on the table," he says, in the ordinary tone; and the child, half listening, does not quite understand, and does not obey at all. Whereupon the master repeats successively: "PUT the book on the table;" and the child takes the book, keeping it in his hand, not knowing what to

do with it. "PUT the book on the TABLE," says the master again; and the child approaches the table, book in hand, uncertain yet what relation to establish between the two known terms—book and table. But the master continues: "PUT the book ON the table;" and the child places it on the table. The next time he is told to put the slate on the table, the dumb-bells *under* it, the balancing-pole *near* it, and the cage *above* it; a slight emphasis upon these words shall suffice; and more obedience will become easy in the same progression. By this example we do not mean to prescribe identically for other cases; often the verb has to be presented prominently in various ways; once for its meaning, and several times for its commanding value, expressed by the imperative mood. Moreover, each child obeys more or less easily; each child understands differently the relations to be established between objects by his own actions; consequently the same order cannot be imposed upon two children with the same voice, accent, etc., in the individual teaching.

But when we come to the training of groups, in which we require less attention and more spontaneity, in which we teach less new things than simultaneity of comprehension, or of execution, then the moral power of command assumes more the forms of an artistic action; the master really acting before and for an audience, whose mean average intellect he reaches or misses, according to his present power, or to the correctness of his own judgment at the appointed time. Who has taught idiots, and not felt once in a while, when sick or laboring under mental depression, that all his powers failed him, that those once sovereign commands, which but lately could carry the children through almost any undertaking, cannot move them to-day, and fall like broken arrows at their feet? This failure, which every one of us has felt, is the most eloquent demonstration of the reality of the moral power, by which man acts upon man, as upon plastic matter.

Thus command is expressed by attitude, corroborated by gesture, animated by physiognomy, flashed by the look, made passionate by the voice, commented upon by the accent, strengthened by the articulation, imposed by the emphasis, and carried by the whole power of the stronger on the weaker

will. This power, as expressed here in the abstract, would be the most wearisome attribute of its possessor, and the heaviest burden on children, if it were not incessantly modified by circumstances, and by passing from one person to another; passage in which it loses its tension for the master, and its grim appearance for the child. Moreover, for reasons easily understood, and insisted upon afterwards, the moral power of command must not be always exercised immediately, directly and from man to man; but by a law of descending gradation, it becomes from immediate, mediate, contingent, negative, etc. It is also modified by habits, studies, moral progress, etc. These forms and circumstances varying *ad infinitum* by their own combinations with the variety of character, we shall treat them abstractly, as if they were invariable: sole expedient to give them a fixed type.

Immediate command, the most stringent, sometimes painful, must be too often supported at the start by coercion. If idiots were all brought up by intelligent parents, and in sufficient comfort, they would have no occasion to oppose the asperities of their negative will to the moral influence which tries to elevate them. But oppression everywhere creates opposition, and the idiot as well as any other man tells pretty well the tale of his past sufferings by his degree of resistance to any improving intervention. No is his first word; negation is his first action; he spends more strength, and often more ingenuity in resisting than he would require in obeying; he will not. He will not, but we will for him. Here is the point where coercion, when necessary, assumes its importance. Corporal punishment is out of the question, but compulsion is not, because it must be used, or idiocy would be stronger than sociability. Coercion is painful, but less so than the shower bath, cold affusion, straight-jacket, etc. Imperative command is painful, but not in the same manner as underhand and fruitless brutalities of servants and keepers, doleful lot of uneducated idiots. On this head let us ponder what Leuret courageously and frankly says: "My object is not to cure by one means or another, but by any possible means; and if to cure my patient I must appear hard and even unjust towards him, why should I recoil from the use of such agencies? Should I be afraid of

making him suffer? Strange pity? As well bind the arms of the surgeon ready to perform an operation necessary to save the life of his patient under the plea that such operation could not be performed without suffering. A man has the stone; gorge him with flax-seed tea, daub him with poultices sooner than to relieve him by a painful operation. * * * * Whatever be the cost to your personal feelings, let us have the courage of the surgeon; our instruments are the passions and ideas; let us employ them, even the painful ones if necessary." This rule of conduct, traced by a master in the art of moral training, is worth treasuring. Leuret says besides: "Physical pain serve the insane and idiots as other men, as a means of education; it is one of the motors which lead us to avoid the wrong and to search for the right; but it is not always necessary." And from our own experience, let us add that where coercion is necessary, it lasts but a short time if properly handled. Indeed, the stronger is the coercion, the shorter is the struggle, the less is the suffering. Idiots know this, and whatever may be their low condition, they understand our meaning, can measure the opposed forces, and will behave accordingly.

Fortunately, coercion need not often be called to the support of immediate command, which is itself an instrument of great power. For, to command immediately means to command without the mediation of anything or anybody; means to employ the forms of command which can directly touch the child, and take an anticipated direction of his contingent doings. For instance, if when ordering an immobile idiot to move the dumb-bells, we stand in front of him, near enough, and in the most immediate conditions, he will do it; but if for the same object we stand at his side, though everything else be as imperative, we see his hand on our side working the dumb-bell and the opposite hand motionless, disobeying, because for the former hand our command was actually immediate, whilst it was not so for the second. And this difference is the more surprising if we consider that the simple balancing of the dumb-bells is a coördinate movement of both sides of the body, whose symmetrical duality is the rule, whose dissymmetry cannot be produced but by a special effort of the will, of which idiots do not

seem capable. Here, evidently, the propulsor of the child was outside of him; felt only by immediate contact and adaptation of our faculties to his organs, and impotent at a greater distance. But we must remark, as a warning, that immediate does not mean incessant, and that this severe form of authority, well managed, does not require to be used many times, nor in serial succession, to produce its desired effect; but that soon the command may be allowed to drop, as it were inadvertently, some of its stringent pressure; or to present itself here in its armor of battle, there in the more pleasant dress of the mediate command.

✓ The mediate command is one given in such circumstances that the child can disobey it if he choose; as across a large table; from one end of a room or garden to the other; in the middle of a group of other children; when that command interrupts a more pleasing occupation; or when it must be obeyed after a certain time has elapsed. Thus, in the mediate command, there is a medium of space, time, object, or person between us and the child; and moreover, that medium may be temporary or permanent, insignificant, effective, or absolute, representing the degree of trust which we can repose in the good faith and good-will of the child; it embraces a wide range of relations.

Before going further in our analysis of the various commands, we are to see what can be commanded successfully or not. To the idiot who will do nothing, we have to command something; but the nature of that something is, at the start, of the utmost importance. At first the idiot is determined to do nothing; we are equally determined to make him do something; thus matters stand. Will the idiot, or we, succeed? Can he resist our will, or can we overcome his negation? And if we have the will necessary to succeed, have we the knowledge of the series of actions that we can, or cannot, oblige him to do? For if we cannot enforce our first command, the idiot will feel superior to us, and many trials will be in store before the legitimate accendency can be established. Therefore the line of demarcation between that which the child can safely refuse to do, and that which he may be obliged to perform, is of great practical value. We establish that line by observing that it is

generally easier to repress than to produce actions; and that the idiot may sooner be refrained in his instinctive manifestations, than forced to produce some intelligent ones: this is the line. Our first orders, therefore, those which must be obeyed, or else the whole treatment is compromised, must be chosen from the class of the things which can be made to be. For instance, we must not order, at first, a child to open his mouth, for what power on earth can make him open it if he will keep it closed against your order? But, on the other hand, what opposition can he offer to our command not to scratch his face, if we occupy his hands at a distance, at the same time that we forbid him to do it? Consequently, let us only command at first that which we have the power of enforcing; and when the child shall feel, after a succession of such commands, that he must obey, we surreptitiously introduce others of a more arbitrary nature, to which he submits himself without noticing their difference from the first; and soon he obeys any order of ours, not because he cannot avoid it, but because he feels that he ought to do it, and finally, because he likes to please us in so doing.

Then the milder form of command, postponed to make room for his explanation, will be resumed. The most comprehensive form is the contingent, conditional, or even simply optional, which may depend upon actions of the child, or of others, present, past, or future events; taste, and contingencies calculated to leave more room for deliberation in obedience. These pre-arranged conditions must be simple, and immediately precede the required action; but later some interval may be left between them, and more time allowed for remembrance and reflection; more to evoke and draw conclusions, and more to think before acting, to favor the rise of consciousness. In this degradation of the original command, the passiveness of primitive obedience has made room, little by little, for the judicious execution of orders; this is not yet spontaneity, but discriminative obedience.

At this time, other forms of command succeed; negative, that which results from not leaving any room for disobedience, letting circumstances themselves impose the order; silent, when the simple presence of the master, near or dis-

tant, is sufficient to renew the vividness of past orders; imitative, when the preconcerted action of other children carries with itself an implicit command to do the same; attractive, when showing the pleasant result of an act, we make our child venture to do the same; but at this extreme limit of mitigation, command loses its name with the remnant of its harsh features; and authority is no more than a watching kindness.

Command, of whatever character, is alleviated besides by the variety of its modes of application. Where children are submitted to protracted sittings under a single rule and for a single object, command is depressing; but when, as in our case, the rotatory system transfers incessantly the children from occupation to pleasure, lesson, exercise, labor, excitement, etc., the forms of command must vary to meet the feelings of indifference, pleasure, antipathy, attraction, resistance successively provoked; and the result is not depression, but elasticity favored by the constant action of the masters on the children, and *vice versâ*.

Another mitigation of the harshness inherent to authority results from the different characters of those exercising it. The child who breathes constantly under the sledge-hammer of not unfrequent paternal rigor, presents a narrow chest; the idiot commanded in the same way becomes automatical, even in his intellectual acquisitions, nearly as much so as he was in his primary isolation. But the rotatory system of training idiots, and its consequence, the natural division of the functions, accomplished in their behalf by persons so indifferent in their moral powers as attendants, teachers, gymnasts, matrons, physicians, does not permit authority to typify itself, even one hour at a time, in one of those oppressive modes which leaves a depressed imprint on a child. If the teacher has been protracting his attention, the attendant soon invites him to a pleasant song; if the series of numbers have been piled up on the black-board, scores of harmonies from the piano take their place; if the gymnast has used a hand to redness, the doctor pats it gently, at the same time that he makes sure of the sanitary condition of the skin, look, pulse, etc. This variety in the manner of handling idiots precludes monotony and aggravations. Ordered in so many

ways, the child passes from one commander to another, without suspecting that he is passive. This supple and mobile passivity itself becomes in a certain sense active, and obedience becomes a voluntary action by the simple effect of timely variety and gradual relaxation of authority: the bird is free to soar in all healthy directions, if he will.

Does this mean that our work is done; that we are no more wanted, nor our authority required; that the moral treatment has exhausted itself; and that the negative will being broken, obedience secure, we must rest satisfied in presence of our work, an unresisting, obedient child? No: evidently we have come to the bifurcation of the road leading to passivity or to spontaneity, whence our pupil may start for a reflex life, whose spring shall be in others' hands, or for a self-regulating life, whose spring is within his conscience. Whole nations and millions of men are yet deprived of this consciousness of their station in ambient society by the total deprivation of moral training. And yet, it would not be difficult to point out young men, former pupils of our institutions, generally from among the most distressing cases of superficial idiocy, who certainly could not have been improved anywhere else; and who, to-day, are far above the average of men in regard to the regulation of their actions by their own conscience of right and wrong. True, there are not many such; but the majority of the others, remaining backward owing to their yet feeble intellects, can govern themselves under a slight and benevolent supervision; since idiots once trained do not require for the maintenance of their social behavior anything equivalent to policemen, *gendarmes*, etc.; kindness, not force, is their tutor, as it was their teacher.

We bring them to this point of moralization, generally far superior to their intellectual standard, by extreme care and affection, but easily enough; because their infirmity, in uncomplicated states, affects the perceptive faculties, even the spontaneity, but does not create any aberration of the affective faculties, as does imbecility, or some special forms of insanity. Consequently, our success in this matter, which is of the utmost importance, must be considered due as much to their good nature as to our own exertions. Nevertheless, whatever could be their share and ours in the result, to obtain it we

cannot too soon commingle the incitations to spontaneity with the most passive or unwilling exercises of the training. Long before we have done away with commanding under all the forms narrated above, we must begin concurrently to use the gentler forms of inducement, which conduct the child insensibly from the diverse degrees of obedience to earnest self-government. Those forms we call incitations to spontaneity, unless we employ the words motor, mover, or motive, whichever may best express our meaning, or be understood. Henceforth, we do not command, we incite; we put the child in contact with motives, and he moves; we create for him, in the artificial atmosphere of the institution, the same relations which impel men of the world to action, and he acts; we present to him attractions, and he is attracted in the measure of his attractability. Hence, he desires, tries, plans, succeeds, fails, gets elated or discouraged, loves and feels of his own free will, as he would under the incitations, apparently accidental, of social life; the only difference being, that we have prepared and graduated to his proportions the contacts to be encountered, or the obstacles to be overcome, whilst, in ordinary social life, such earthly providence is not to be expected. This begins at the lowest point of animal life, but we shall not choose our illustrations lower than the act of feeding.

When an idiot commences, not to receive, but to take his food, we overlook, for our present object, the coarse tearing of the meat, the hasty swallowing without mastication, and other depravities equally repugnant and unhealthy, to consider only how intensely animal and selfish he is in his action; how much more he needs the spiritual than the material nutriment of bread; and our duty becomes manifest to make him understand the book of wisdom contained in a mouthful. As he was himself fed by others' hands, as soon as he can carry a morsel to his own mouth, he must be made to present the same to some children incapable, in different ways, of feeding themselves. He must be made, besides, to feed animals chosen for the lessons he may get from their perspicuity of sense, vivacity of movement, and neatness in eating. But these incitations by the example of animals must be carefully selected, otherwise from some of them he might

learn vicious modes of mastication, or excessive appetite for flesh, or even confirm himself in his greediness. Then he must be placed at table next persons who give constant good examples, who timely correct his bad habits, and admonish him orally with great discretion, for appetite is deaf.

Appetite naturally speaking louder than morality, the voice of the first must be lowered, that of the second heightened. For this reason, we should not make them eat in large groups, within sight of huge dishes; but they should be served in small rooms. Being few at a family-like table, they have to wait long enough to give each one the chance of controlling the beast which is inside his stomach; not so long as to let it loose in disgraceful manifestations. The same scrupulous care will direct the apportioning of the children's food. Not only the cut or measure requires an ever-changing discretion to meet the requirements of changing appetites and climatic circumstances; but the hand responsible for this duty must never appear tired or careless; for often the child despises his food, or eats it grossly, because it was carelessly served or handed to him. In the same train of care and delicacy, as soon as convenient, the children should be made to wait upon each other, with order and decorum. How can we make them do it? Not by telling, arguing, threatening; for we repeat it, hunger is deaf; but by the incitations of example from birds, animals, other children, and mostly from ourselves; the best example is our own. We must be their teachers in this, by being their servants; our serving teaching them to serve others by imitation, emulation, ambition even; do they not want to do as the teacher does? When this ambition begins to produce its normal effect, we open a new issue to their mind through their food, by asking if they have produced or helped to prepare it; what part they had in this, what part others, etc. Then we must make them realize, in a tangible manner, that the food they will take, and which shall sustain their vitality, is the result of the concourse and combined efforts of hundreds of their fellow-men, who have contributed it for their comfort. We must make them aware of their relations to those who have worked and suffered as farmers, gardeners, bakers, to produce this food, and to those who; less fortunate, hunger and have

nothing to eat. In this spirit, the idiots of Bicêtre repeated before meals the following blessing: "Our Father, bless the food we have before us, and so let it be that the poorest have the same. Amen." Another equivalent, after meals, and others adapted to their studies, work, etc. By no means would we have it surmised that we were participants in any mummery; but we tried in simple words to convey to simple children the simplest ideas of equity and reciprocity between men under the Supreme Justice, and we think our efforts were partially successful.

Another prominent occasion for the application of the moral treatment is the work. But here the subject is so vast that we cannot even pretend to mention all its important points. Idiots must be made to work for a result. That result, or product, must be sensible and comprehensible in proportion to their perception and intellect; must be, at first, of personal and immediate use, such as to draw water to quench actual thirst, or pull up from the garden vegetables to eat presently, etc. The next and complementary step leads them to do the same, or similar work, for the satisfaction of others. Soon, again, they must be made to work in coöperation; several to help one, one to help several, one helped for his own good, or helping for the advantage of others; all manner of solidarity, either in the work, or in its result; working as a social element, as a moral status.

But here we speak of enforcing the moral and social duty of working, upon unfortunate children scarcely reclaimed from their nothingness, before inquiring if they are in a condition to support, like all of us, the tedious and exhausting burden of labor. Men must work because working is the only way of producing; and produce we must, since we consume. Idiots escape that law as long as their infirmity incapacitates them; otherwise they too must work in the proportion to their strength and capacity. But all that could be expected of the most successfully strengthened and educated among them, is from four to five hours' labor a day; just the share of each one of us if all were working.

But can the idiot be made to work in competitive industry, where steam and machinery force production every day to an extent unknown the day before, and reduce proud man-

kind to the shape and degradation of the stunted, sallow, and sullen workmen of Lyons, Lille, Manchester, Birmingham, etc. If idiots are to be so employed, it were better to leave them in their primary condition. Nevertheless, we do not ignore that some idiots manifest peculiar tendencies which can be utilized in one mechanical trade or another. Where such strong natural ability exists, let it be followed up, if the child himself can derive profit and mental happiness from its prosecution. But this peculiarity does not belong to a class; being only the strange gift of one in many, it cannot justify their miscellaneous packing in shops. The very few in-door labors they can be put to are more or less connected with the various departments of housekeeping. In this line, children feel the solidarity of the principle, understanding easily that they work for themselves and friends; if they do not make money by it, they gather a harvest of sense, of order and mutual dependence, with appropriate feelings and ideas related to their position and social standing. Otherwise, and under any other circumstances, they must work as much as possible with the concurrence of nature, and with the genial coöperation of the sun. By all means we must let this be their life in the institution.

The relations of money to food and to labor are to be presented to such of the children as can understand them, in the most practical form; their own books establishing the balance of their accounts with the institution; each child credited with the value of his work, and debited with his expenses. When they have followed a class of pricing (as we understand there is one in the Earlswood Institution, England), for usual objects, with critical observations on the qualities requisite in each, such as shoes, books, gloves, needles, etc., we send them to make experimental purchases with their own earned money, and let them and the other children debate together the result of these foreign operations.

As a set-off and compensation for so much care heaped on frail beings, we devote as much time as we can to the most sensible of our duties, to make them merry and gay in innocent relaxation. Those who have seen idiots, at the second stage of their education, so shy under a strict rule, so daring in the play-room, will readily understand our mean-

ing. But it takes a long intimacy with the sterner forms of the infirmity to get at the mystery of the silent progress accomplished by the lowest idiots, during the first and nearly despairing period of their training, when admitted to witness the liveliness of the play-room. There, the pleasures enjoyed by the more forward pupils have a reflex influence of a curious character upon the worst cases; the immovable feel reflectively the exaltation of the impressible; they enjoy through the joy of others, and seem to prepare themselves for future like enjoyment, by occasional twitching of some muscles, more abundant dribbling of saliva, or an erratic smile; as we see the chrysalis moving its future wings under the bearings of its dirty gray cocoon.

But the feelings of idiots are not all of an indescribable nature; on the contrary, what the majority of them feel, whether joy or sorrow, they express openly and accurately. If any person coming among them be indifferent or attractive, we see it reflected on their face; if the entertainment prepared for them be pleasant or not, we read it in their countenance; and it requires a pretty good insight into their character to hit the mark. Therefore the actings performed to please them, with the concurrence of some of their number, as in Syracuse, Media, Barre, and Earlswood, are to be planned by their best friends and teachers, who become for the occasion impressarios, managers, and costumers. It is astonishing to see how real idiots enjoy these representations; and it is touching to see them trying to bring the acting to the understanding of their lowest fellows. Next to these stately representations, and several times a week, comes dancing, and many times a day comes music.

Promenades for a short distance, excursions farther, must be of frequent occurrence. Not that we advise them for the mere object of airing the children, or of improving their physical health, but to prepare a special end to them each time; and although that end will not always directly have a moral object, yet the children will contract by it the moral habit of giving an object to each of their actions, and of planning and expecting a return from each of their undertakings: conclusions highly moralizing of themselves. Therefore, if we often send some children to carry objects of com-

fort to a destitute family in the neighborhood, we send them too on the beach to collect shells, or in the meadow for violets; the woods will furnish them one day with green leaves, another with russet or red ones; at one time, at our suggestion, they hunt for the smallest, at another for the largest leaves; again, for blue or red berries, or for nuts, acorns, etc. The very stones may be collected on the way, according to color, form, or size; we must never let our pupils return empty-handed.

The institution is never so far from a city that its inmates cannot be admitted to the sights of civilization and wonder. We must beware of too much isolating the naturally isolated idiot. By sending him, as soon as he behaves, to church, to the museum, meetings, shows, and even theatres, we do not so much create in him a taste for those things, as a desire of mingling with yonder world; pregnant curiosity, which is of itself one of the mainsprings of life. Besides these amusements, Christmas, New Year's day, and other holidays should be duly observed.

The children must have stores of playthings easily destroyed and renewed. Before leaving these in their hands, we cannot avoid remarking that there are none of them which have not certain qualities and effects, in relation to our children, worth studying. Some of them are to be enjoyed alone, some in common; great distinction which must, above all, govern their distribution. Then come the particular characters of each; we would not have Punchinello make his automatic gestures before a child whom we want to cure of the same; nor would we like to hear the barking of a *papier-maché* dog near a child whose voice is not yet settled in the human notes; we would avoid, as much as possible, toys used individually for children addicted to loneliness, and try to give a social character to those which are generally made to amuse a single child; the more numerous the players, the more lively and social is the game; we can never teach too many children, nor too often, with toys. They may be taught in school many things utterly useless for their improvement; but they cannot be made to play together, with or without toys, without learning and increasing their moral qualities:

playing is a moral power, amusing the lowest idiot is another; our children must enjoy both.

In the school, at meals, in the fields, on the play-ground, all points of contact for these secluded children, how many chances has the teacher to oppose them in relations which shall create their sense of moral association, their sociability, and their family-like affinities. But it is easier to let grow, out of unprepared contacts, rivalry, quarrelling, and disaffection, than to thoughtfully prepare the associations of our charge for the production of concert, harmony, and affection. However, circumstances may occur in which the best pre-arranged contacts become painful to some; those who cannot be saved these asperities, must have their sore feelings soothed; and all of them may be taught to love by being loved. Who could do it better than those who have devoted themselves to their improvement? To develop their sense of affection, as were developed their senses of sight, of hearing, and others, does not demand new instruments or new teachers, but the extension of the same action upon their feelings. To make the child feel that he is loved, and to make him eager to love in his turn, is the end of our teaching as it has been its beginning. If we have loved our pupils, they felt it and communicated the same feeling to each other; if they have been loved, they are loving in all the degrees of human power conformable with their limited synergy.

We should like to say how this is to be accomplished; but who can tell? Leuret, being asked about that moral influence, said that he could not tell; all depended on inspiration and circumstances; all unforeseen and impossible to foretell. We characterized it as an action of the stronger on the weaker will for its improvement; but it is an action incessantly varying, upon terms constantly modified; phenomena evading analysis, serial evolutions escaping graphic drawing. In its march it begins with the most profound feelings of pity and charity for the unfortunate; it continues through compulsory, impulsive, or inciting commands; a work ever changing in form, never changing in object; unremittingly coaxing the isolated child into society; it is throughout a work of devotion. In this work the teacher, the nurse, the physician, the philosopher, the physiologist, the psychologist, and the

moralist have something to do. But their doings are all subordinate to those of the most profound affection. For our pupils science, literature, art, education, medicine, philosophy, each may do something; but love alone can truly socialize them; those alone who love them are their true rescuers. The men who pretend to treat idiocy with talent, erudition, even genius, may find the appreciation of their Utopianism in these words of Paul: "Though I speak with the tongue of men and of angels, and have not charity, I am become as sounding brass, or a tinkling cymbal; and though I have the gift of prophecy, and understand all mysteries, and all knowledge, and though I have all faith, so that I could remove mountains, and have not charity, I am nothing." Evidently the apostle knew more than we about moral treatment; and we close our feeble remarks by meditating upon this forcible text on the subject.

PART IV

INSTITUTION

The establishments founded for idiots have been called by various names—Schools, Institutions, Asylums, etc. The term school expresses well the place in which these children are educated, and that of institutions leaves more room for the understanding that therein they are boarded, nursed, and especially treated also. Nevertheless, it does not seem proper to employ one of these two terms to the exclusion of the other without having taken the advice, duly debated and matured, of the persons most engaged in the work. This seems one of the questions relating to the subject which requires the earliest solution.

We are aware that the appellation of asylum has been attached to several of the most important schools. But this term conveys conclusively the idea of a custodian, life-long place of retreat, whereas the institution or school is only temporarily open for educational and physiological treatment. In it idiots and their congeners are expected to remain during the period assigned by nature for progress in young persons, unless it sooner becomes manifest that they cannot be improved at all or any more, in which case their parents should take them out to make room for new pupils. In all respects this is an institution similar to those for the deaf mute and the blind. Besides, the term asylum is wanted for a necessary appendix to the school, in which idiots and other victims of incurable affections of the nervous system shall be received for their lifetime, when, after having followed, with only a partial success, the curriculum of the school, they are found destitute of means or of kind parents. The asylum would be the place where they would be cared and provided for, in the same spirit of charity in which they were taught, if it be connected with the institution, organized like a farming family, and managed by retired teachers and attendants, understanding the peculiarities of idiots and accustomed to treat them like their own children.

The report of Orfila to the Administration of the hospitals of Paris (October 12, 1842) and that of Serres, Flourens, and

Pariset, to the French Institute (December 11, 1843), are the twin corner-stones of all the institutions since founded for the education of idiots.

In Switzerland, Guggenbühl, and in Prussia, Saegert, soon worked on the data furnished by our numerous pamphlets, issued from 1838. On this side of the Atlantic, Dr. Frederick Backus, of Rochester, worded a report to the Senate of the State of New York, for the foundation of the first State Institution for Idiots. It was voted by that body in the winter of 1845-6, but subsequently defeated by the Assembly. Our first private school was opened by Dr. H. B. Wilbur, at Barre, Mass., in July, 1848; and in October of the same year, Dr. Samuel G. Howe opened in South Boston the first State Institution, due to his persevering action on the Legislature of Massachusetts. The State of New York had the plans of Dr. Backus realized in 1851. Pennsylvania owes to Mr. J. B. Richards the beginning of her State School in 1852; Ohio, Kentucky, Connecticut, Illinois, following. England founded the institution of Highgate in 1847, and that of Earlswood in 1853; Scotland had hers later; all civilized countries have now one at least; but none has so many in fact, and in proportion to its population, as the United States.

It took ten years to found the method of training idiots, and it required fifteen more to found the institutions on the most solid basis of the budget of nations. After having exposed the method, it would be a great pleasure to describe and compare the various institutions, but the means of doing it are not within our reach; and after reflection, we are now inclined to think that this deprivation may be turned to good account, by permitting us to say with more independence what the typical institution must be, rather than what each of the existing ones is.

Supposing the seat of the establishment selected according to the Hippocratic rules in respect to air, water, elevation, and genial exposure, we advise only to locate it in the mean and most equable temperature of the geographical circumscription in which its future inmates have been born and raised. Any great change in this respect would be followed by unpleasant consequences; though we are inclined to think that in extreme latitudes a slight deviation from this rule

would be rather favorable, if it carried the institutions of the North a little to the South, and those of the South a little to the North. By this artifice, the climate of the former shall not be more intensely, but longer warm, whilst the climate of the latter shall be favorable to labor and exercise for several weeks.

The buildings of the institution must have a special character, unlike those of any other educational establishment, to correspond with certain idiosyncracies of the children and with numerous exigencies of their treatment. Idiots vitiate the air very rapidly; hence the necessity of supplying them with more than an ordinary share of it, by making their rooms very high and large, very airy and easily ventilated, accessible equally to natural and artificial heat. Their training, unlike that of ordinary children, requiring movement, noise, and show, demands a special distribution of the building, which, in this wise, becomes one of the most effective means of physiological education: upon this we must dwell at some length.

Part of the Casement, founded on high ground and well drained, may be used for bathing, and for taking the meals if the windows be situated so that the children can, from the tables, enjoy the view of the gardens, purposely ornamented. The dining-rooms must be numerous, small and neat; so that the children may be grouped in each as at a family table. The upper stories are devoted to sleeping apartments, infirmary, and the like. The dormitories are large, but in no instance should contain more than four to ten children with one attendant. These rooms are kept tastefully in order by the same attendant, assisted by her children. There are no means of communication from the side, story, or building occupied by the girls, to that of the boys.

The ground floor is the institution *par excellence*, the learning, moving, acting of the children, taking place on this floor, whose distribution must be entirely subordinate to the necessities of the treatment. When these shall be better understood, the reception-rooms and other accessories will be removed from this floor to give free scope to the general training. The partitioning of this floor must be so contrived that each room may be closed by itself, or all of them wide open, connecting as a single circular hall. This, as a whole,

serves the various purposes of the general training. It may be seen at a glance that to be made serviceable in this wise, the space occupied by the school apparatus must be insignificant, compared to that left for the movements; otherwise, each room having its decorations, instruments, and character perfectly determined, according to its destination; and, as these apartments substantiate the special training, at least the greater part of it, we must describe the most important of them.

For these special purposes, the rooms must communicate freely, be closed easily, intercept the noises from one part to another, present large wall surfaces opposite to large surfaces of light; the ceilings must be lofty but even, without any relief or colors unduly attracting the attention. The floors must all be on the same level, for carriages to transport the most immovable pupils, and things generally; otherwise the floor of nearly each room be marked in a certain manner, for the different exercises to be followed in them, as we shall see.

Though it matters little which part of the institutions we describe first, we may as well begin with the delineation of one of the numerous recesses where an inattentive and ungovernable child is taken apart, now and then, to fix his attention and reduce his disordered movements to firm immobility. This is a mere nook, uniformly colored like a studio; lighted by a single window with no landscape, no accessory ornament, no furniture save two firm blocks, shaped like the sole of the feet, and destined to support, like pedestals, the child at a height from which he cannot escape, and whence he can, must, and finally will take notice of the presence of his teacher, or of a thing offered to his sight, in the absence of anything else to be seen.

Near at hand must be the large-sized room, in which involuntary exercises of the feet are taught; the self-acting swing, opposed to a spring-board, from which the feet borrow strength and elasticity; the ladder lying on the floor forcing the child, who must walk between its rounds, to raise his feet; the treadmill whose floor moves, and makes the child walk *in situ*; the blocks rising from the floor at regular walking distances; and parallel to them, the painted footprints on

the floor; the former to make the regular walk compulsive, the latter to make it obligatory. Here, dumb-bells are only used as means of equilibrium, to give regularity and firmness to the walk. That room has an issue upon stairs, expressly built with series of various sized steps, to teach the going up and down: dumb-bells are carried there too.

The room in which are performed the exercises of personal imitation, must be exempt from noise, ornament, or attraction of any sort. Its floor must be marked here and there with straight and curved lines, and with series of footprints upon which each child is expected to stand, or fall back to in due time; these footprints affecting a straight or slightly concave line, or several such, according to the wants of the teaching; for, to imitate well, all the children must see equally the motions of the teacher. In some places are holes in the floor, used to secure blocks upon which unsteady children are forced into steadiness during the exercise, being unwilling to fall.

The development of the human voice being favored by the voice of instruments, there is a piano in the room devoted to purely vocal exercises. There, one child at a time, or many together, are trained to emit tones, short or long, high or low, single or by pairs, or in series. If this room be ornamented, its pictures must represent musical instruments, *bonâ fide* singers and even comical concerts. The articulation-room is more secluded, offering no distraction, not even through the unique window, which is rather high, and throws its bright light, not horizontally, but from above downwards, in order well to show the articulating movements.

Imitation relating to objects, or impersonal, requires a vast room. Closets alternating with architectural engravings and images of things to be imitated; very few seats, large tables, the middle of the room remaining unencumbered. In the closets are the pieces, carefully assorted, necessary for the representation of certain patterns hanging on the walls, or near at hand. On some tables are geometrical blocks, whose forms stand next for comparison and adaptation. Other blocks of various sizes, most of them shaped like bricks, are piled up in out-of-the-way places, ready to enter into whatever combinations, whether of a few geometrically assembled on a

table, or of a great many rising from the floor in towers, or extending in walls, houses, and circumvallations.

The education of the touch demands separate accommodations. The room in which it is done must be easily deprived of light, well supplied with closets containing a selection of substances, productions of art or of nature, whose characteristic properties fall under the control of the tact. When there is a want of room, the exercise of the taste and smell may be practiced in the same place, though they do not exact so much attention as those of the touch and may be favored by the sight of the pictures representing repasts, feasts, convivialities, fruits, flowers, and such-like; external elements of incitation of taste and smell, at best superfluous in tactile gymnastics.

Though auditory exercises are not all confined to a single room, we may describe only the principal one devoted to it. In it the child is spoken to, close by, and at various distances; directly from the mouth to ear, or through the medium of hollow tubes, speaking-trumpets, etc.; or he is submitted to the direct agency of watches, bells, pianos: that room must be supplied for such emergencies. But it would be a poor teaching of audition to limit the sounds to one room; those first heard, because they are actually produced near the organ, must soon be reproduced farther and farther from it, till instead of directly impinging upon the organ, they are to be gathered in the concha by an effort of the child's will. Therefore the pianos, violins, etc., playing in this room must, for some special teachings, have their tones continued by some similar instruments placed in the building, at graduated distances. Besides, the audition-room is the place for the ordinary training of that sense, by making the children appreciate, as in sports, the noises produced by the fall or the contact of various bodies, their own voices reciprocally, etc., without the assistance of other senses.

The gymnastics of the sight require more space, and cannot even very well be confined to rooms; but part of them demand the following accommodations. A place easily rendered dark and easily lighted by the removal of one or several blinds, whose displacement at once gives entrance to a large amount of light. To these windows may be adapted kaleidoscopic combinations, stereoscopic views, simple colors,

forms, or letters, or striking images to be shown or concealed in a moment; the same room, lighted at will from above, to exhibit objects through long tubes and appliances, such as opera-glasses, microscopes, etc. And a gallery is to be fitted up near by, in which the bow and air-gun may be used, or which may serve as a croquet-ground or a bowling alley. Once the look secured, the child is transferred to the room in which he shall systematically learn colors, forms, dimensions, and the combination of parts to form a whole. Here ornaments and decorations are not amiss; the walls are covered with rich pictures, to which reference may be had when studying colors on cards, or with samples of cotton, woollen, or silken fabrics. Here too we see for the first, and not the last time, the narrow semicircular table, inside of which the teacher stands, while around it are the children. There are few chairs, and fewer unobstructive closets, running low along the walls, to keep the objects necessary for the aforesaid teaching, leaving plenty of room in the centre for moving and comparing objects.

Drawing, writing, reading, are taught in one room. Opposite the windows, the wall is entirely covered, at a proper height, with slate or composition answering the same purpose. On the sides are cards representing letters and words; the simple representation of the familiar objects named on the cards, and forming, with the words written on the black-board, the staple reading matter of beginners. In well-lighted embrasures stand also some of the ingenious machines for composing words. There are no more seats and tables than absolutely necessary for a temporary rest of part of the class. But in front of the black-board, there are on the floor painted foot-marks to keep the children at a proper distance from the object of instruction; and when these marks are not stringent enough, isolating blocks are put up, and the delinquent is expected to behave from the top of them. But immobility and attention are generally secure with less apparatus; as when children have their names conspicuously written on the board, or other conventional punishment felt more keenly than strangers might suppose.

A room, very similar to this, is destined for calculation. Besides the slates and series of balls of various colors set on

wire, there are collections of objects by numbers of the same kind, easy to aggregate or separate in groups at a bidding. To that effect more tables are provided here than anywhere else; all horizontal and circumscribed by a slightly salient edge, so that no object could fall. On these tables the four rules and fractions are taught with grapes, pears, marbles, nuts, etc., as thoroughly as by the most disheartening abstraction; they are transferred to the slate only when well understood. Here, at other times, assembling objects by pairs, series, similarity, or contrast, is rendered easy by the presence of numerous collections. Exercises of nomination take place also, in which the sight of objects provokes to language, and language in its turn spurs the lazy sight to recognition of objects: tedious exercise when it begins slowly, highly interesting when prosecuted with fire by a smart teacher followed by six or ten animated pupils.

The number of apparatus occupied by the preceding and following trainings shall depend upon the size of the building. Collections made by the children themselves, and those of minerals and animals, or others that accrue naturally to an institution of this class, are expected to occupy large places; so that references and illustrations from them may be constantly at hand. The necessary distance of the institution from cities, whose streets and shows exhibit at all hours the true magazine of learning for the masses of the people, and the difficulty of sending idiots about to pick up by sight that which no book nor teacher can convey to their mind, renders more imperious the duty of making these collections as numerous as possible.

The objects gathered with the express view of giving object-lessons, do not need to be always in sight; but need careful arrangement and storage; where they may be found, and in such order that the qualities by which they resemble one another, or differ, be apposed in their resting-places; so that it may suffice to present them as they stand there, to exhibit to the children the vividness of their properties. The things collected to teach pricing are quite different. At first they are very few, and of the kind that the child cannot afford to live without. The appreciation of their value carries with it the use of numbers, scales, yards, money, and other ele-

ments of valuation: a knowledge of intrinsic value requires the gathering of more objects, a better study of their properties, and more sensorial discrimination. The collections made for that study must resemble in their arrangement, more than any other, the shelves of a store filled with samples of several qualities of everything that the child may be expected to need himself, and likely to call for afterwards. This room naturally becomes the place where qualification exercises may be carried to the utmost limit.

When room is scarce, we may put together, but never confusedly: 1st. On the higher shelves, the patterns of simple things that the children may occasionally have to execute in wax, clay, wood, etc. 2d. Somewhat lower, and easily seen but not touched, the standard toys, expansive, delicate, conveying more ideas by the sight than they would pleasure by handling. 3d. Still lower, within reach of prehension, the playthings proper, bright, cheap, and easily broken contrivances, which are so necessary to the happiness of children, and from which they learn so much, even when destroying them.

A room sufficiently large to contain all the children and visitors, is used daily for the common singing, and occasionally for musical and other festivities. The care of ornamenting that room with fresh wreaths and new patterns of decoration falls to the more intelligent children of both sexes, under the guidance of a person designated for that duty by refined tastes and habits. This music or meeting-hall is the one in which the children dance or play together till the sleeping hour comes sooner or later, according to age and grade of intelligence; otherwise the girls and boys enjoy themselves in separate chambers and playgrounds.

The rooms in which dumb-bells, balancing-poles, Indian clubs, and the like are used, have their floors divided in one direction by straight lines, in another by rows of footprints, to mark the distance at which the children must stand not to hurt each other, and to help their classification. This room also serves for various imitation exercises, and opens, for more than one convenience, into the gymnasium.

This last contains the gymnastic apparatus proper; those essential to restore the muscular function, not to exaggerate

it. It is, besides, the hall in which take place all the exercises and sports when the weather forbids their being carried on in the open air. For this vicarious purpose, the gymnasium must contain the various playthings in the same order as in an armory the arms are set up in racks; not for an idle display, but as standing provocations to desire and use them. Thus, with taste and show, are exhibited hoops, skates, sleds, balloons, ten-pins, kites, wooden and other balls, all arranged against the walls in attractive symmetry. Bows and arrows, wooden swords and guns, occupy in rows accessible positions, ready to be seized by the children, who need to learn the use of war implements; the determined attitude, the quick step, the firm grasp, the sure aim, etc. Even the fighting value of this military training in so feeble hands can be no longer despised, since two of the pupils of the New York State Institution went into the army of the Union, understanding very well what they fought for; one died of the fatigues of the campaigns; the other, wounded in two battles under Sheridan, died at Winchester. These things give to the gymnasium a character unlike to that of any other part of the building. Another peculiarity of its disposition is the gathering in it, and in the smallest compass, of all the difficulties which a child may accidentally find in his way, by establishing along its walls a system of up and down declivities and stairs, of artificial ditches, and of abrupt ascending and descending planes, over all of which the children, excited by music, by the voice and the animation of all the force of teachers and attendants, are unavoidably carried into a vortex of movement against the sluggishness of their own nature. When the weather is dull, chilly, thawing, the doors closed, the habitable world of the family limited by the gray windows, we mobilize them by a quick tap on the drum, a friendly one on the shoulder, a hand to support the trembling, a word to encourage the timid; on they go, each one and all pushed, pushing, falling, raised up, laughing crying, animated in their features and movements, as if they had never been idiots; till masters and pupils, eager for rest, are stopped, after ten or fifteen minutes of this wild chase, by the dinner-bell.

But happy the time when the gymnasium and most of the rooms can be vacated, and training and teaching may be

transferred to the open air. There another and more natural school is prepared for them, and by their own efforts. Between some lofty trees, they have built and dug up with spades and wheelbarrows, walls, ditches, and race-courses strewn with obstructions, over which they are made to run, and from which they must extricate themselves. They have also raised stone or turf banks to sit upon under the shade in warm weather, and listen to the wonderful stories flowing from their teacher's lips. Thence they are sent in quest of specified natural objects, such as leaves, insects, flowers, etc., and they return, each one with his booty, a more intelligent countenance, and a happy face.

But all is not enjoyment in their lives. Next to the pleasant shades, the gardens and fields are open for more sober sports, which may be rendered as interesting as their destination is useful. The very youngest of the children are sent in squads to dig little holes a few inches apart; to deposit a precise number of seeds in each hole, without missing any; to cover the seeds with light dirt, etc. Later, being made familiar with the shape of a few leaves, they are sent in crowds to weed out from a large patch every green thing showing itself under a form different from the one expected to grow on the spot. The hunting for insects destructive of vegetation, is another occupation rendered attractive by making the children conscious of the good they do, and by creating a gentle emulation among them for the number, the size, the strange appearance of their captures, etc. Soon these children become able to pave the garden walks with pebbles, or make gutters at their sides; they learn in short sessions the use of the spade, hoe, rake, watering-pot and others, according to their strength. Their implements should be light and efficient; this is capital; how many beginners have conceived for their work the abhorrence justly deserved by their clumsy tools. We will not follow our children, grown stronger, in the farm to see them helped by animals which they treat kindly, and above all, aided by nature. This is essentially the work for them. There, idiots are not exposed to crushing competition, but receive the concourse of the great Helper. Once, at the entrance of a poor man's field, was written, "The sun shines for all men." We read it many a time in our tender years

without understanding it; but even on another continent, the sentence followed us, with its sun daubed in the middle, and we think that we understand it now; since we wish, we pray, that idiots may be kept working only where the sun can mature what they prepare: the sun of God shining for all.

Now that we have described the most important parts of the material institution, as the locality, or frame with many compartments in which the various acts of treating idiots take place; each room, nook, corner, hall and ground having been shown with its object, it is easy to perceive the unity of the intellectual institution, hot-bed of physiological education for infirm children.

The intellectual institution is the living counterpart of the method. We discover in it the same flexibility of adaptation to all the physiological deficiencies, to bodily and mental weakness. In it the rotatory system is substantiated; we see the child moving from one mode of training to another, as in the method we could realize, his feeble mind led from one perception to another, and elevated, not by direct ascension, but by side-liftings and propagation of forces, as levers act on apparently immovable masses. The counter-drawing of the method is personated: firstly, by the children; secondly, by agents whose action upon them is as systematic as the method itself, though rendered fluent and easy by the train of affectionate impulse.

We shall first consider the children. Those forming the body of an institution must be idiots, of course; but among them are others rendered incapable of attending ordinary schools by various infirmities, and for whom no educational provision has yet been made. It would be useless to rehearse here the conditions of fitness of idiots and their congeners to the institution; we suppose that most of the applicants may be benefited in it, but we are obliged to acknowledge that their indiscriminate admission would impair the efficacy of the establishment, and we remark at once, that this would occur in two ways: one by the preponderance of certain sorts of infirmities among the admitted children, the other by their intrinsic number without reference to classification. In regard to variety in the infirmities of those received, the pupils may be selected so that the institution has life in it, or falls upon

itself like a dead weight. Therefore, in their admission, great discretion is to be exercised as to the number and the gravity of each kind of cases. If the bulk of them were affected with automatic movements, or incapable of auditing, or of comprehending orders, or affected with impeded locomotion, or prehension, etc., the predominance of one of these infirmities would act very depressingly, not only upon the individual treatment, but fatally on the onward and even movement of the general training of the mass of the pupils.

To constitute the broad and lower stratum of a normal institution for idiots, they and their congeners must accordingly be chosen in view of forming what we may be permitted to call an efficient body of incapacities. In this body the life, though defective, circulates and may improve, because the children have been apposed with regard to the representation in the school of the many infirmities characteristic of typical idiocy. In this wise the establishment is made to represent in the concrete, abstract idiocy, with its normal amount of incapacities and of quasiaptitudes equipoised, so that it may be compared to a merchantman whose cargo is distributed for swift sailing. In general terms, if we want the institution to progress, the inmates must be chosen so that no special condition in them predominates over the others; but we must particularly warn any new establishment against three of them: 1st. Epilepsy, which too often aggravates idiocy, ranks foremost. It is nearly impossible to forward the general treatment with the impediment offered by the sight and care of convulsions, impressing badly the other children, and consuming the available force of the *personnel*. 2d. Extensive paralysis and contractures, when largely represented, raise the same objection. 3d. The admission of many very young children acts in the same manner by the incessant care they claim, part of which hinders the movement of a public institution. The nursing required by so young pupils is not only the caring and watching day and night, so necessary to weak children, but it is the ceaseless fondling against a warm breast, from which the child seems to derive part of his vitality; and as idiots are, besides their infirmity, generally by several years behind other children, they need several years more of tender nursing and motherly care. It is better, therefore, as we

said, to teach their mothers how to apply at home the physiological process of development, sooner than to admit them to pine away in the midst of apparently favorable circumstances.

In private and select practice, provisions may be made to avoid these inconveniences; but in public institutions, the general end to be attained must not be lost sight of for the sake of improving more especially a class of patients, nor even a set of functions in all of them. The school is to be filled by a choice of pupils whose collection shall form a unit easy to move, easy to command, easy to progress with the expense of a given force of intelligent persons. And by such judicious choice of pupils on the one hand, and of assistants on the other, the moral being called institution for idiots is expected to be able to train her children up to the highest point of their possible attainment, instead of being herself dragged, by their dead weight, to their level.

Besides, to form a school, the children must be numerous enough to be worked successively into the various modes of general, group, and individual trainings. This minimum number must be attained to form anything like a school—even a private one. We would not say that, to succeed, there must be at least so many pupils in training at once; for it would be like mistrusting the miracles of individual ingenuity, or denying the power of devotion, money, scientific investigation, etc.; it would be like producing false evidence against ourselves, since we treated idiots by ones, by tens, before we gathered them for the first time by the hundred in Bicêtre. But we say that whatever may be gained by the close contact of one teacher with one or a few pupils in individual lessons, is far from compensating the loss experienced by the necessary absence of group or general training among isolated children. No doubt they may, in this wise, learn more through the teacher, but they will acquire less intuition by themselves; they will obey more integrally, but they will not act so soon, nor so well by the impulse of their free will; they may understand more, but will certainly do less. In fact, the two modes of teaching act so differently, and are so completive, not suppletive of each other, that the best school is the one which includes both; and consequently, a public institution must be numerous enough to permit a rational classification, without

reducing the groups to mere individualities. For this vital reason, it would be advisable to unite the means and efforts of two states to create a healthy institution, sooner than to foster several in deplete conditions, unfavorable to the circulation of activity among children. But this rule must only be affirmed in its most general terms, and for public establishments.

If we are reluctant to fix a certain minimum of pupils for an institution, we must be more cautious yet in regard to fixing their maximum number. Evidently the more numerous they are, the more easy would be the formation of groups, if this operation needed not to be strictly founded upon a thorough study of the individual cases. Here lies the difficulty which may be stated in a very few words: how many idiots may be studied, taught, and treated with unity and comprehensibility, under a single head, by a staff of officers? We do not say fed, warmed, and kept at the lowest ebb of vitality; we mean educated and developed to the fullest extent of their capacity. Unfortunately, experience in this matter is too young to be invoked as a guide. Good common sense may help to form a judgment; but the question will evidently remain open till practice shall have verified or corrected our conclusions. If we consider, as we think we must, an institution as a unit in itself representing the pathological unit idiocy, we see that the children forming its body may be grouped for the sake of training as are the symptoms of idiocy, in various categories; though the same child will, of course, enter at successive hours of the day into several of these groups.

Muscular exercise will at least form five groups; those of the senses and speech, eight or ten; drawing, writing, and reading, half as many; object-naming, specifying, qualifying, pricing, counting, about six; the relation of actions to persons and things, expressed by verbs, prepositions, etc., the same number; all told, without reference to outside labors, there would be above twenty groups of pupils to be formed, to fulfil by their collection all the physiological indications included in the treatment of idiocy. Granting, on the average, that a group formed for exercises of attention must not be composed of more than five children, and that one formed

for activity must be under twenty, this gives us an average of ten children to each group. If we suppose the total number of pupils to be one hundred and fifty or two hundred, and a quarter of them always engaged in outside work, we have a maximum of one hundred and fifty pupils, forming fifteen groups of ten, under five teachers and three gymnasts, two groups to each, during six hours in the day. This gives forty-eight hours of individual or group training to fifteen groups, or three hours to each group. These three hours are given entirely to individual and group teaching, during which the child is expected to use his muscles, senses, and brain, alone or with the encouragement of a few mates doing the same thing. In the three other hours he is directly taught in the general training, or indirectly by being made a witness to the close activity and expressions of intelligence elicited from others, whose direct teaching reacts upon him in proportion to his nearness.

The efficiency of this indirect training is enhanced by the capacity of the teacher for understanding what *nearness* means for every pupil, and in presence of every kind of exercise. These, viz., the best conditions of perception, are extremely variable. A very small child will scarcely pay attention to exercises of personal imitation performed by a taller one, above his head, but will not lose one of those performed at a suitable distance and on the level with his horizontal line of vision. Then, to give him a passive lesson of this kind, let us place him at the proper height and distance of a group of imitating children, and he shall learn often, from that standpoint, what our direct and protracted patience could not teach him. But this point of perception cannot be determined in the abstract; it varies according to the thing to be taught, to the sense to be provoked, to the size, capacity, infirmity of the child, and often to other anomalies to be ascertained by experience. Altogether, three hours given to direct, three hours given to indirect teaching, make twelve classes of half an hour each, through which each idiot passes, without reckoning his general training, active amusements, walks, etc.: the institution is made quite a busy place for children but lately idle.

The general training and pleasure exercises being taken outside of the class-rooms at different hours, during which the

attendants are on duty, one attendant being able to take care of from five to twenty children, according to how helpless these latter are; they need not be more numerous than the teachers, if their charges are not too much crippled, or otherwise immovable. This number of one hundred and fifty pupils in actual training seems easy to divide into natural groups to mass and to move. It is quite high, no doubt, if a man has to take all at once possession of it, individually and collectively, and to forward the treatment of each one and all, in an ascending march. But as it is not often that anybody is called, at short notice and without preparation, to such a duty, it may be asserted that with a previous knowledge of the old cases, a man of ordinary ability, well supported by his assistants, as we shall see he must be, will always be able to keep up the study of the new cases with the direction of the mass. Therefore, without fixing any number to the bulk of pupils forming the body of an institution, we must see that that body be not too heavy for the head, nor the head too light for the body.

Having given our views for what they may be worth, in reference to the selection of pupils and to their number to form a school under a single direction, we have now to give an idea of what may be considered as the motor, sensorial and intellectual, of the institution, with its attendants, gymnasts, teachers and superior officers. We can do this better by a review of their daily contact with the children (in which the rotatory movement, systematically exposed above, shall find, by and by, its natural illustration), than by a formal drawing of their abstract functions.

The attendants are the persons most constantly in contact with the children. To have one in each sleeping-room, the servants of all the departments are expected to do, at night, the functions of attendants. It is altogether a light duty, but one which teaches them kindness to the inmates who are the source, not to be lost sight of, wherefrom employment and salary come to them. Those of that class whose other functions begin early, are allowed to room with the most intelligent children who require only a short watching when going to bed, and in the morning from five to six o'clock. The real attendants have to wash, clean, and dress the chil-

dren from five to seven A. M., with what help they have taught the higher grade of them to give the lower. After this the pupils are amused and walked in, or out of doors by one-half of the attendants, while the others take their first meal. Before going to breakfast the children are reviewed, one and all, by the Superintendent. The attendants must repeat to him the verbal report they made to the Matron about the night, and give the particulars of what may have transpired since they arose. This morning examination is no light business to be trifled with, or trusted to half-competency. In another place we have shown it to be the first step towards the school-room, or out of it; here we present it in its relations to the daily regulation of food, diet, hygiene and medical treatment. The verbal report of each attendant on sleep, cleanliness, and health during the night, and the morning written summary report of the Matron, are confronted with each other and with the actual condition of the children. Anything anomalous which has happened or appears at the visit, must be the starting-point of more minute inquiries, and lead to hygienic or remedial measures beginning precisely before, or with the next meal.

At the close of this morning visit each attendant conducts her children in small squads to breakfast, which is served in small rooms, and according to habit or to special prescription. There again the attendant is alone, aided only by the more intelligent children, who feed with her the more helpless, or proffer other services. When breakfast is over the children are cleaned again and their physical wants attended to especially, so that nothing of the sort may interfere with the coming operations of the training. Then the attendants transfer the pupils to their teachers, and during school hours part of them take charge of the housework, part of the sewing, part of them are allowed to rest. At and after lunch, dinner, and supper, the same services are performed, after which the attendants accompany their charge, conveniently separated by ages and sexes, wherever the temperature permits. Here they are enjoined to not communicate one with another, nor work, nor read nor sleep, but to be in direct communication with the children, making them happy and lively with playthings and simple devices; at least making the lowest walk, without

leaving them drowsy and isolated. Some children listen to stories, some are prevented from injuring themselves, some are amused, some are gathered around a girl singing simple melodies. When the afternoon teaching is over the attendants take final possession of their charge, clean them again, passing through the same routine of duties, and after supper accompany them to the music, dancing, plays of some sort, by which the day is closed. After consigning the children to bed the attendants may assemble for an hour or two of conversation, private sewing, etc., previous to resting themselves from their arduous duties. These have been arranged so that from morning till night every attendant has been in active service ten hours a day, almost all the time near the children. These indeed are trying hours, if we consider the responsibility of the station, and the kindness to be used as sole agency of obedience to orders, and of training to the habits of social life. The attendant cannot be empowered to punish or coerce children, but to help and incite them only; hence the necessity of choosing for that function women very kind, gay, attractive, endowed with open faces, ringing voices, clear eyes, easy movements, and affectionate propensity towards children. These are their only real power; when it fails they have to refer to their presumed superiors in intelligence, and to borrow of them an authority which cannot be exercised but with a complete knowledge of the physiological anomalies of each case. Thus is spent the time of these good women, who attend to the idiots much in the same manner as the monks of Spain of yore, and the farmers of Ghel later, took care of the insane, with little science, but a great deal of charity.

They have been followed all the while by the Matron, who sees that everything is right at bed-time, in the middle of the night, and in the early morning. When the first bell sounds, it is she who goes from bed to bed, making sure that the sick are not taken out and bathed to satisfy the uniformity of the rules. She soon knows who has been clean, quiet, orderly last night; and who is qualified or not for the occupations of the opening day. Thus she controls and confirms the correctness of the reports of the attendants; at the same time that, by her presence, she exacts that the children be

treated in these trying hours as she would treat them herself. It is out of our plan to follow her in the exercise of her general functions, which are so well understood. But idiots require a very different sort of maternal attendance from that needed by other children gathered for charitable purposes. As soon as the orders resulting from the morning visits are received, she sees that they are carried into execution. In the infirmary she attends to the application of such dressings, and to the giving of such medicines, as the children may have been ordered; and at meals she directs that the prescriptions relating to individual diet are punctually executed. She never allows the children to go out without seeing that each one is clothed according to the peculiarities of his constitution and the temperature. The feet and hands are the objects of her greatest care in creatures whose circulation is mostly sluggish or impaired at the periphery. When they return she should look at each, to see if any one has fallen, hurt himself or others, coughs, or suffers in any way. In this kind of duties, of which we give only a few specimens, the matron's rôle is active. At other times her action becomes nearly or entirely silent or passive; as whenever the children are engaged in their various avocations with the teachers and gymnasts. There, without saying a word unless for the most urgent reason, she passes, remarking which among the many countenances become weary, exhausted, listless; she notes these for future observation, unless the uneasiness becomes so great as to call for immediate interference. She presides at the festivities among the children; at large parties, or weekly music or dancing, or daily evening pastimes, of a pleasant and informal character. And when the children have been put to bed under her eyes, sooner or later according to ages, she has not yet made them her last visit before retiring to rest herself.

The teachers begin their work together by leading the children in the singing exercises of the morning; after which they go to their respective rooms, into which they are followed most willingly by the pupils, very few of whom need be directed to their proper places. Each teacher has a programme of lessons and a series of groups of children; both adapted to each other in the table of movements of which

every one has a copy. By this table the teachers are allowed the same variety of exercises as the children in respect: first, to the teaching, so that two successive lessons shall not employ the same set of organs, nor exact the use of the same intellectual functions; and second, to the persons, by changing, relatively, children and teacher at each lesson, thus preventing the moral fatigue which results from protracted and often unsuccessful contacts of obedience and understanding. But the teacher has many other things to do besides teaching. She first places the children, as they come each half-hour, in presence of their lessons, far or near according to their wants, or to their individual capacity for immobility, attention, perception, etc., or to the active or passive groups to which they temporarily belong. She takes note of the impression made on the health of every child, pushes or stops an exercise according to the depression, or more rarely to the exaltation it causes: never aiming at imparting so much knowledge, but at exercising such functions to such an extent. These and other accessory cares exact a great deal of her mental power and vigilance, besides the fatigue of teaching proper. After six hours so employed, in close contact, we nearly said combat, with the intellectual infirmities of her pupils, the teacher is scarcely expected to fulfil any other serious duties towards them. Nevertheless she must direct them in their excursions, gathering insects, leaves, flowers, anything, by sort or kind; and help them to arrange these in collections; and she has, besides, a busy hand in all the representations, charades, dancing, extra and regular evening pleasures of the family. When she retires, it is yet her duty to note anything particular which has transpired about the children, or any remarks of hers upon the teaching, suggested by her own experience of the day. These notes cannot be confided to fugacious memory, but must be written in a durable form and laid like the material for the foundation of a better edifice than the present method is, after having been discussed in teachers' meetings, and submitted to the repeated tests of experience.

The gymnast, though a teacher also, has functions which differ, if not in their material mechanism, at least in some particulars, from those just mentioned. His lessons are more

neatly divided into general, group, and individual. More than the teacher, he must be assisted by the more intelligent and willing pupils, because he may command with his single will many movements, but can correct only a few wrong ones with his own hands. Here the help of idiots is doubly precious, since it trains the movements of the lowest by the training of the intellect of the highest; the former learning to imitate, the latter to reason the imitation, besides developing his will; clumsy as these helpers look at first, they are valuable and soon become precious. The gymnast seems to need, more than the teacher, the quality of judging the point at which each exercise must be carried by each child, to be physiological and safe. He must know that point, strive to attain it, feel it, and there stop: in this lies his talent and the safety of the children. He is besides called to direct the outdoor sports, whose apparatus is changeable according to temperature and locality; to lend a useful hand to the pleasure-parties of any sort given to the children; and is obliged, like the teachers, to write out *in extenso* his observations on the children, and on his part of the training.

As the housekeeper takes charge of the girls as soon as they are able to learn practical housework, so the steward has the management of the boys in the garden and fields; whilst all the persons working in the Institution are expected to lend their assistance to the training of the children in their special avocations. To sew, garden, or wash for the establishment is well enough; but to help the children in doing the same is better yet: in fact, everybody here must be ready to turn into a teacher of idiots. The duties of the steward, in particular, are important; as in relieving the Superintendent of many gross cares, leaving him more time for his intellectual functions. But our delineation of the Institution is too general to admit of following any one of its officers but in their direct action on the training.

But so many persons are not expected to act in such close concert of time and purpose without conforming their conduct to a plan strongly framed, the conception of a single head. The Superintendent is or should be that head. He is supposed to be prepared by special studies to confront the important problems enclosed in the yet mysterious word idiocy. His

functions are many; more, we think, than he can well perform.

He has to manage delicate relations with the Legislature or corporations to insure the financial existence of the Institution. He has to keep open general and private communications with the public, and with the families of idiots: most parents needing to be educated to the point of understanding what their children are, and what may be done for them. In these respects he can scarcely do too much; since here, after fifteen years of voting, paying, printing, lecturing in favor of idiots, and notwithstanding the practical training of above five hundred pupils by State munificence, nine-tenths of our well-educated population, and more than one-half of physicians, ignore the very existence of the New York State Institution at Syracuse.

Two other points require his special attention. When the parents of idiots have become familiar with the object of the school, he must make the mother understand the advantage of her coming with her baby often, to be advised on her future course, to see what training she can pick up and carry home, to not allow idiocy to be aggravated by inactivity. And he must take advantage of favorable incidents to sound the truth as to what she considers the circumstances which had an influence on the abnormal condition of her child. All she says about it must be recorded, probable or unlikely, simple or monstrous, vulgar or supernatural. Time alone can permit a judgment, not upon hundreds of such sayings, but upon the comparisons of thousands. Provisionally these records are allowed to sleep in their annual and alphabetical order. But when the subjects of them become older, and application is made for their admission, these notes are confronted with the actual status of the grown child; double foundation, copious and minute elements of a future monograph. In this expectation no pains must be spared to give the second report the fulness and clearness it requires to be used as the starting-point of a scientific observation. In it the Superintendent insists upon the circumstances of locality, hereditary constitution, parentage, alliance, conception, gestation, labor, lactation, impressions of the mother and nurse, dentition and infantile ailments, early or progressive backwardness of the vital manifestations, closing by a thorough description of the same at the time of writing. The

Superintendent who interrogates the parents and asks from the functions of the child an answer on all these points, begins to possess his subject. What the family or child cannot tell, his means of investigation shall reveal. Next, the functions of organic life are analyzed; heat, respiration, circulation, blood, urine, saliva, sweat, fæces, are submitted to the tests of the new senses of observation and comparison created by the use of chemical reagents, the microscope, the thermometer, the stethoscope, spirometer, dynamometer, etc. The child is weighed, measured in his diverse proportions; his capacity for endurance and activity is tested; his powers of intelligence and speech are ascertained; his will and habits delineated; a pen-and-ink portrait is drawn of his whole being, and kept together with his photograph, as witnesses to the point at which he began to be taught. Then the Superintendent, with a perfect knowledge of his subject, may launch him among the other children, not yet as an accepted pupil, but as a probationer on an experimental treatment of observation.

Therefore the superintendent must have an absolute understanding of the children. Others may be more familiar either with their habits, capacities, or peculiarities; but none must know them so completely himself. Then come what may, resistance, obstacles in the training, etc., he knows what to believe and who to distrust, and can truly superintend the work. This possession of the character of his pupils and of his subordinates is the store which supplies his capacity; out of it he draws his best resources for the accomplishment of his subsequent functions.

The most important of them is to take the lead of the school movement; operation by which the children are distributed in efficient groups, and in which sufficient exercise of each of their functions is apportioned to every one of them. He follows, throughout the general training the impressions made upon the health, progress, habits, of every child; from which he deduces the propriety of continuance, change, or simple modification, either in the nature, length, or intensity of the multi-form objects of training. It is very difficult to understand how he can delegate this duty for any length of time, without losing the meaning of what is done in his name; or how he can relinquish it entirely, without assenting to a potential abdication.

This active observation is particularly required for the new pupils received on probation. Before their final admission these children are to be studied in diverse aspects. Being generally undersized and brought up in inactivity, they are not expected to be as robust as others; though not more sickly than the average; but more than the average afflicted with epilepsy, paralysis, chorea, or secondary affections considered as obstructing the channels leading to improvement. At any rate, any one of these infirmities superadded to idiocy cannot improve it. However, the Superintendent is to call discretion and discrimination to his aid in the appreciation of the character of both ailments. Is idiocy primary, or consequent to, or simultaneous with the other affection? Does idiocy aggravate the other disorder, or is the reverse true? Does idiocy require a treatment entirely opposed to the cure of the accessory disease? Or does the accessory disease need to be cured prior to treating idiocy, or *vice versa*? What impediment or what help may the treatment of one bring to bear upon the issue of the other? What influence may the accessory affections of one or of several children have upon the general training, or upon the nervous, imitative, or intellectual faculties of an undetermined number of pupils? Will these accessory infirmities act by contagion, example, or like dead weights on the institution? These questions are not of the kind for which written answers will do; each case containing its own solution, to be read from the symptoms, as they are evolved during the process of observation.

Another point to be studied in the new pupils with no less attention, but of more general import, is the relation of their need and power of assimilation to their deperdition of force under the friction of newly imposed labor. Prior to entering in training, these children derived a bare sustenance from their food, abundant or scanty, rich or meagre. In their new status they will need food; 1st, as previously, to support life; but besides, 2d, to furnish the elements of a larger growth; 3d, to increase their vital powers; and 4th, to spend in their new activity. Who will not admit that great change must be made in the food, and great change must take place in the result of feeding, to obtain great changes in the constitution, habits, and functional manifestations of the new-comer? And who does not foresee that if the use of the best means of nutrition

does not go further than feeding the idiotic constitution in the idiot, he will never emerge from idiocy? Therefore the first struggle between the Superintendent and his pupil does not consist in showing him letters that he will not look at, but in generating by food and hygienic measures a given force to be spent and renovated in increasing ratio: this is the A, B, C. If, in spite of these means, he does not gain, or actually fails, in his strength during the period of observation, Nostalgia has taken possession of him, or he has entered into his age of senility, which begins for some idiots at the time ordinarily marked for virility; or he may be impervious to any of the modes of rejuvenating the circulation. Prudence reserves the final decision on the nature of the causes of this failure; whilst observation notes, calculates, weighs, measures the vital forces; and if these tests show any gradual decrease under a treatment intended to invigorate, the child must be turned over to the parents, at least temporarily.

But how could we restrict to the new pupils this double survey of the effects of food and diet on the forces, and of the influence of the production of forces on the treatment? Does not every pupil every day require the same watchfulness? Does not the whole movement of the institution depend upon the sum total of force produced by the regulation of said equilibrium; and does not the superintendent stand in regard to this harmony in the same relation as the engineer in regard to the proportion of heat to steam, of steam to weight to be displaced? In this respect he will not allow himself to be imposed upon by reports of ignorant subordinates, or by written prejudices.

The products of alimentation being the ultimate means relied upon to raise the children from idiocy, they must be fed, not to be filled, but to produce by nutrition the desired force. But so far, any interference of science in the arts accessory to feeding have produced only sophistication and crime. Erostratus was a saint next to the chemist who has taught millions how to adulterate wine and bread, the two staples of civilized life. The theoretical division of food into nitrogenized and non-nitrogenized is not so firmly established as to authorize a Superintendent to risk upon it the future of his children; and the uncertainty of other hypotheses must satisfy him conclusively

that alimentation is not a science but an art. Of this art we know thus much. Nourishment is the result, not so much of bulk, as of variety; the reason of this is, that man is omnivorous. Consequently, that which nourishes the most is not always the richest food, but the one most relished; because being desired, it produces an abundant secretion of salivary and gastric fluids, by which the food is more thoroughly assimilated than when it is indifferently swallowed. Another consequence of this remark is that, setting apart the cases of perverted tastes or Pica, the children themselves are pretty sure judges of what is good for them; and will tell it to any one who will take the trouble of reading their tastes on their countenances while they eat. As to quantity, they are not so good judges, their appetite often wishing more than is required by their appetite; this is a matter to be regulated by experience.

But the future of the children does not depend only on their feeding. Seasons, epidemics, accidents, individual deficiencies, bring their unavoidable share of sickness—of death even:

*“Et la garde qui veille aux barrières du Louvre,
N'en défend pas les rois.”*

But disease or impending death comes rarely upon idiots in the open manner in which it ordinarily assails men. They feel it more by a negation of feeling than positively; so that questioning them is useless, and their answers, if they can speak, are deceptive. In this emergency, nothing will do to settle the diagnosis, if not precisely as to the disease, at least as to its lenient or dangerous nature, so well as the use of the tests of vital forces already referred to.* It is not in our plan to follow the idiot to his sick-bed; the Superintendent who does it knows more than we do on the subject. One thing only we mark: let us remember that in sickness as in health, the idiot is always laboring more or less under his primary deficiency of nutrition. But constant reference to the state of heat, circulation, and respiration, will warn against the danger of asthenia. We do not mean to say that the superintendent is to put these tests aside as soon as life is no longer in peril. We mean, on the contrary, that he must use them for all the

* See Aitken on Wunderlich's practice; and E. C. Seguin on the New York Hospital practice, in the *Chicago Medical Journal* for May, 1866. 4

pupils. These vital tests and the chemical microscopical, and other examinations of the condition of the functions and secretions, are to be made and recorded monthly, and oftener in special cases.

But the use of scientific appliances does not dispense the Superintendent from measuring also the vitality of the children by the physiological standard of their activity; to see whether they sleep, eat, play, study, labor with a healthy soundness, or show traces of languor or restlessness in what they do or refuse to do. If these two kinds of evidence coincide in their indications, they call for due hygienic interference and instant modifications in the training. Thus the Superintendent keeps his eye fixed upon the pupils, and his hand as if he were constantly feeling the pulse of the institution.

However, many other things are to be done for the children by others, and yet with a unity which can but proceed from him; and he cannot impress on the mind of his assistants the direction of his own, without giving much time to their training; be they, or not, experienced teachers, matrons, attendants, or others. He must give them his plans of treatment to be carried out, and they must impart to him their daily experience in the progress of individual training; this interchange forms their bond of union. By this constant exchange of views from the general to the special, the Superintendent is not in the least exempted from controlling the teaching on the spot. There he will find that after years of experience, the best teacher may act contrary to the laws of physiology, and he may surprise himself learning new things in his art from some peculiar incapacity of an idiot.

Besides, he endeavors not to spend an evening without having some informal conversation upon the topics of the day, advising changes, provoking verbal or written expressions of opinion from his subordinates. In this constant intercourse familiar suggestions take the place of orders, plans are laid for future labors, and materials are accumulated to keep up the interest of the monthly meetings. These meetings, central points wherefrom radiate the views of the Superintendent, are occupied by the reading of the reports of the family, of the girls and the boys drawn up separately, of the school common to both sexes, but distinct as to every part of the training.

Attention is called by the Matron and the more intelligent attendants upon domestic matters, and by teachers and gymnasts upon new points pertaining to the training. Extra tasks of observation are assigned to competent parties, changes are prescribed, and new orders given, closing by the reading of short essays on the various incidents of the last month's labors, health, etc. Very few, if any, of these essays must assume the tabular form, in which children, habits, progress, exercises, are reduced to figures. On the contrary, it is desirable that they be intimately connected with the treatment of specified individuals, even with a very limited part of it, provided the observation be thorough. These fragments must be classified with the other documents pertaining to the history of the same child, and will be found invaluable for the formation of monographs.

Every year the Superintendents of the various schools for idiots should meet, to impart to one another the difficulties they have encountered, the results of their experience, and mostly to compare the books containing their orders and regulations. These books, the embodiment of the past and future life of the institutions, are not so much the personal property of those who fill them with their creative and organizing genius as that of society, which lavishes money upon the schools, not only to improve idiots, but to spread the means adapted to their improvement. In the same spirit the Superintendents might agree upon a system of temporary exchange of teachers and attendants. This would be very beneficial in grafting from school to school certain peculiarities of training nearly impossible to transmit by writing, and would offer pleasant change and relaxation to trusty officers after faithful and protracted service.

Then the Superintendent should consider the important questions relating to the propagation of schools for idiots where they may be needed; to the creation of *asylums* proper, in which adult idiots, left friendless or imperfectly improved, might find a happy home; to the opening of special hospitals in which choreic, epileptic, and otherwise nervously affected children might be treated, instead of being, as actually they are, a dead weight upon the institutions. This enumeration only opens the series. In regard to the theory and prac-

tice of their art, they should ascertain the precise point at which stands their own knowledge of the nature and origin of idiocy; their skill in diagnosis and treatment; and the elucidation of the physiological questions involved in the theory of the training. After these and kindred queries have been answered, or proposed as problems to be solved at future meetings, they should consider the relation of their art to the scientific world. Few and perfect monographs are to be issued from time to time; the publication of works upon some analytical points of physiological education is to be encouraged; public lectures on the less abstruse points of the treatment of idiots might be tried; and a pecuniary interest taken in a Medico-Psychological Review, in which the ideas and the tendencies of the school might be advocated. The physicians to the insane have to be shown that, next to the moral treatment handed down to them by Willis, Pinel, and Leuret, the physiological training that has been so far restricted to the treatment of idiots may accomplish great things in the way of correcting false ideas, and particularly perverse sensations in the insane. Finally, at these meetings some means must be devised to make common-school teachers familiar with the *ensemble* of the resources offered by the physiological method to develop harmoniously the whole being in our children.

It is thus apparent that great responsibilities rest upon the Superintendents and upon the trustees who employ them, in carrying out the immediate and remote objects of the foundation of schools for idiots. Narrow eagerness in the pursuit of some points in the practice; remissness in analytical inquiry; neglect of the synthetical problem of physiology; dropping of the scientific and social corollaries already issuing from the doctrine of physiological treatment and education; such are some of the evils which may bring down a school for idiots to the level of a richly endowed poor-house.

Happily these warnings are founded more upon that difficulty, inherent to human nature, by which we are incapacitated for fully carrying theory into practice, than upon any positive symptoms of decay in the young institution. It looks healthy and vigorous; it spreads far in lands where freedom is cherished, and deep in the hearts of those who first acknowledged their bonds of brotherhood with the suffering many; it

rises in solid reality among the monuments of learning and benevolence; it arose as one of the mature realizations of the gospel on earth, that nothing can destroy; it wanted only a better exponent of its principles; this insufficiency we have kept in mind, though it is mitigated by the consciousness of having once more accomplished our duty towards our Master, our pupils, and a holy idea.



ED
988

ED
988
989

1939
ED
1941
1942

Stanford University Libraries



3 6105 020 074 501

132.2
S 456

STANFORD UNIVERSITY LIBRARIES
STANFORD AUXILIARY LIBRARY
STANFORD, CALIFORNIA 94305-6004
(415) 723-9201

All books may be recalled after 7 days

DATE DUE

MAR 2 1999
MAR 21 1998

Stanford University Library

Stanford, California

For information about this and other books please
contact the library personnel. We will be glad to
help you.

